"A STUDY TO ASSESS THE EFFECTIVENESS OF WATER GLOVE APPLICATION ON RISK REDUCTION OF HEEL ULCER AMONG BEDRIDDEN PATIENTS IN ERODE MEDICAL CENTRE HOSPITAL,ERODE."

By

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WHAT I BECOME IS MY GIFT TO GOD”

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LIST OF ABBREVATIONS

HOD	Head of the Department
Et.al…	Others
Fig	Figure
H_0	Research Hypothesis
H_1	Research Hypothesis
SD	Standard deviation
NO	Number
X^2	Chi-square
%	Percentage
WHO	World Health Organization
F	Frequency
Kg	Kilogram
OPD	Out Patient Department
Rs	Rupees
i.e	That is
etc	Extras
Ml	Mililitre
DMIPSR	DR. Mahalingam Institute of Paramedical Sciences and Research
ICU	Intensive Care Unit

M.Sc (NSG)	Master of Science Nursing
N	Total Number Of Samples

ABSTRACT

A quasi experimental study to evaluate the effectiveness of water glove application on risk reduction of heel ulcer among bedridden patients was undertaken by Mrs. K.Ammu as partial fulfillment of the requirements for the Degree of Master of Science in Nursing under Dr. M.G.R. Medical University, Chennai.

OBJECTIVES

1. To assess the heel ulcer score among the bed ridden patients before and after water gloves application.
2. To assess the effectiveness of water gloves among heel ulcer patients.
3. To determine the association between pre test heel ulcer among bedridden patients with their selected demographic variables.

HYPOTHESIS;

1. H1; There will be a significant difference between the mean pre test and post test heel ulcer score among bedridden patients
2. H2;. There will be significant effectiveness of water glove application among bedridden patients.
3. H3; There will be a significant association between the posttest heel ulcer score among bedridden patients with their selected demographic variables.

METHODS ;

The research approach used for this study was evaluative approach and the research design was quasi experimental design. 40 bedridden patients, among that 20 in experimental group, 20 in control group was selected for this study by using Non probability purposive

sampling technique. Descriptive statistics(frequency, percentage, mean, & standard deviation) ,inferential statistics(chi-squares, paired 't' test and unpaired 't' test)were used to analyze the data and to test hypothesis.

MAJOR STUDY FINDINGS

The study findings showed that in the experimental group, in pre test4(20%) of the samples had severe risk heel ulcer score level, 6(30%) of the samples had high risk heel ulcer score level, 5(25%) of the samples had moderate heel ulcer score level, 5(25%) of the samples had mild heel ulcer score level . Whereas, in the post test experimental group, 2(10%) of the samples had moderate heel ulcer score level, 5(25%) of the samples had mild heel ulcer score level , 13(65%) of the samples had normal level. . In control group, in pre test in 3(15%) of the samples had severe risk heel ulcer score level, 4(20%) of the samples had high risk heel ulcer score level, 6 (30%) of the samples had moderate heel ulcer score level, 7(35%) of the samples had mild heel ulcer score level. In control group ,in post test in 5(25%) of the samples had severe risk heel ulcer score level,6(30%) of the samples had high risk heel ulcer score level, 5 (25%) of the samples had moderate heel ulcer score level, 4(20%) of the samples had mild heel ulcer score level. From the above finding it is clear that there has been a significant difference between pre and post test level of heel ulcer score among bedridden patients

The present study results revealed that among the experimental group, the mean pre test score of heel ulcer was 15 with standard deviation 3.4 where as the mean post test score of heel ulcer was 19 with standard deviation of 2.7.the obtained `t` value 13.2 was significant at $p<0.05$ level.

In control group the mean pre test score of heel ulcer was 14 with standard deviation 3.4.whereas the mean post test score of heel ulcer was 12 with standard deviation of 3.1.the obtained `t` value 2.3 was significant at $p<0.05$ level. Hence the hypothesis (H_1) is accepted.

The study shows that among experimental group, the mean post test score was 19 with standard deviation 2.7.among control group, the mean post score was 12 with standard deviation 3.1 . the calculated ` t` value 7.8 was significant at $p<0.05$ level. From above the findings it is

revealed that water glove application y was more effective in reducing level of heel ulcer among bedridden patients. Hence the stated(H_2) is accepted.

The calculated chi square values of for the type of ward were found to significant at $p<0.05$ level. Hence it is inferred that type of ward have significant association between the level of heel ulcer among bedridden patients. Hence the hypothesis(H_3) is accepted .

CONCLUSION

The main conclusion drawn from the present study was that most of the adults with heel ulcer had normal, mild, moderate, high risk, severe risk heel ulcer. After water glove application, the level of heel ulcer was reduced significantly. Samples became familiar and found themselves comfortable and also expressed satisfaction. It is thus concluded that the water glove application is effective in reduction on level of heel ulcer among bedridden patients.

KEYWORDS ;

Effectiveness, water glove application, heel ulcer.

CHAPTER – I

INTRODUCTION;

" YOU CAME EMPTY HANDED ,

YOU WILL EMPTY HANDED.

WHAT IS YOURS TODAY ,

BELONGED TO SOMEONE ELSE

YESTERDAY AND WILL BELONG"

" IF A PATIENT IS COLD. IF A PATIENT IS FEVERISH, IF A PATIENT IS FAINT ,

IF A PATIENT IS SICK , AFTER TAKING FOOD , IF HE HAS A BEDSORE ,

IT IS GENERALLY THE FAULT NOT OF THE DISEASE , BUT OF THE NURSING."

"FLORANCE NIGHTINGALE"

According to "WOUND CARE COMMUNICATION NETWORK"2008 pressure sores are red areas of sores on the skin. They are also called bed sores , and decubitus ulcer and pressure sores .they can occur over any bony part of the body.

According to "NALINIDEVI" 2008, bed sores more accurately called pressure sores or pressure ulcers .it defined as areas of damaged skin and tissues.

According to SHAHIN et. al .2008, pressure ulcer has been a significant problem because it is occurred in every health care setting as hospitals ,nursing homes, and hospice and even at homes.

According to THOMAS 2008, moreover added that about 57-60% of all heel ulcers occur within hospitals, and heel ulcer recognized worldwide as one of the five most common causes

of harm to patients, as well as a largely preventable patient safety problem and increasingly describe as an indicator of the quality of care provided by health care organizations.

According to **SHAHIN et. al .2008,** foot ulcer have been described as one of the most costly and physically debilitating complications since the 20th century . On the other hand ,heelulcer cause pain and discomfort , prolongs illness , delay rehabilitation and discharge , and may contribute to disability and death . Health costs raise dramatically , the need for supplies , nursing hours, and community resources increase , it is estimated that a heel ulcer can increase the cost by 50% (CATANIA 2003)

According to **Johnson 2009,** although the etiology of heelulcer is not fully understood, but it is very important to identify the groups at high risk for heelulcer .

According to**(JOYCE 2005, AND ELIZABETH,2009)** the risk factors for it include age, moisture , nutritional deficit .more ever heel ulcer occurs exclusively in people with limited mobility , so it is a challenge to prevent the occurrence of heel ulcer.

According to **JOSEPH & JAIR 2010,** fortunately heel ulcers are preventable , the edge "prevention is better than cure ". Holds good if proper care is given to patients, who are at risk of developing heel ulcer.

According to **Dr. KOZIAK,2010**who is considered to be the father of medicine, heel over sore research found that very high pressure over a short period of time, was just as dangerous for developing ulcers.

According to **FINNISH WOUND CARE SPECIALIST AROVONEN 2010 ,** the responsibility of the treatment and prevention of heel ulcer is mainly on nurse . therefore self education and updating the recommended prevention methods regularly would be important.

According to **NATIONAL PRESSURE ULCER ADVOSARY PANEL (NPUAP) 2011** The use of support surface is an important consideration in pressure redistribution . The concept of pressure redistribution has been embraced .

The water gloves solves the problem by equally distribution of weight of the pressure areas of patient body surface , and all pressure points contact the water at less than capillary pressure . Thus capillary circulation continuous unabated , nourishing even tissue that over lies bony prominence

According to **LALAN 2011**, more than one million individuals develop heel ulcer each year.

According to **CHRISTIAN MEDICAL SOCIETY 2011,** has divided support surface into three categories for reimbursement purposes. Group devices are those support surfaces that are static they do not require electricity .eg ; air ,foam, (convoluted and solid) gel and water overlays or mattresses . These devices are ideal when a patient is at low risk for heel ulcer development . Group2 devices are powered by electricity or pump and are considered dynamic in nature .eg alternating and low air loss mattresses .Group 3device , also dynamic, comprises only air-fluidized beds. These beds are electric and contain silicone-coated beads. These beds are used for patients at very high risk for pressure ulcers.

Most experts agree that when a heel ulcer develops, its location, size (length, width, and depth), and color of the wound; amount and type of exudates (serous, sangous, pustular); odor; nature and frequency of pain if present (episodic or continuous); color and type of tissue/character of the wound bed, including evidence of healing (e.g., granulation tissue) or necrosis (slough or eschar); and description of wound edges and surrounding tissue (e.g., rolled edges, redness, hardness/induration, maceration) should be assessed and documented.

NEED FOR THE STUDY

A recent study by **the Healthcare Management Council (HMC)** (2014) found that US hospitals stand to save millions of dollars per year by eliminating treatment quality errors. According to the study, a 200 bed hospital is likely throwing away $2 million dollars yearly because ofheel ulcer, patient falls, and other never events and hospital acquired conditions.

Ling Fu Shaw.et.al., (2014), done a cohort study on incidence and associated risk factors for pressure ulcers amongst the population of surgical patients, total of 297 patients admitted to a teaching hospital for a surgical operation Taipei, were taken. The Braden scale, pressure ulcers record sheet, and perioperative patient outcomes free from signs and symptoms of injury related to positioning and related nursing interventions and activities were collected the incidence of immediate and thirty-minute-later pressure ulcers is 9.8% (29/297) and 5.1% (15/297), respectively, admission Braden score, and number of nursing intervention after adjustment for confounding factors.Study conclude that admission of Braden score and number of nursing intervention are well-established to protected from pressure ulcers development.

Manjeet Singh Dhanda (2015) had done a prospective study on prevalence and clinical evaluation of Pressure Ulcers from neurological wards of a tertiary care teaching hospital in Hariyana, India, from July 2009 to August 2014 among 228 patients seeking care. Braden scale was used for predicting pressure ulcers in the study subjects. All patients showing the potentiality of developing clinical signs of bed sores selected and put on the study list. Patients aged and the worst pressure sores were excluded from the study. Out of total 228 study subjects, 61 subjects developed pressure ulcers giving a p value of 26.75%. According to Braden Scale, 16.39% of patients were at high risk for

developing the pressure ulcers.

SukhpalKaur,et al., (2015), had conducted an exploratory study in Colambia, total of 2408 patients from various departments were enrolled in the study, who were assessed for the development of bedsore every alternate day from the day of admission till their discharge or death.Out of them, 6 per cent (141) developed bedsore. Further, 34.8% patients were at'very high risk'38.3% were at high risk,15% were at moderate risk and 23% were at risk,of developing bedsore. It has highlighted that the incidence of bedsore is highest among those admitted to Intensive Care Units of the institute and those shifted from the Emergency.

One of the largest studies regarding bed sores in a hospital setting was carried out by the Agency for Healthcare Research and Quality. The report concluded that hospitalizations for heel ulcer (also called decubitus ulcers, pressure ulcers, pressure sores) have increased by more than 80% from 2010 to 2016. This increase includes people who were admitted to the hospital because of heel ulcers or developed them while being treated for another condition in the hospital.

In 2016, there were 503,300 hospital stays with heel ulcers noted as a diagnosis– an increase of nearly 80% since 2016. The heel ulcer stays totaled $11 billion in hospital costs. More than 90% of the heelulcer-related hospitalizations were intended to be for medical conditions unrelated to heel ulcer treatment. Compared to stays for all other medical conditions, hospital stays related to heelulcers were more often discharged to and long-term care facility and more likely to result in death. 72% of adults hospitalized with a secondaryheel ulcer diagnosis were 65 or older. In comparison 56.5% of adult patients had a principal diagnosis of heel ulcers were 65 or older.

An observational study, **Haeslar 2017**found zero incidence of pressure ulcers and a 50% reduction in plantar flexion contractures in sedated individuals who wore a heel elevation boot3 (Level 3.e evidence). A quality improvement report demonstrated that use of heel suspension boots for individuals at high risk of heel PI was associated with a 44% reduction in any heel PI and a 67% reduction in full thickness PIs over 12 months9 (Level 3c evidence). It appears that there is no significant difference between different models of heel suspension boot for efficacy in preventing heel PIs13 (Level 1c evidence).

The reported incidence (number of new cases per year) of heelulcer in acute care facilities ranges from 2.7% to 29.5 % the prevalence in acute care setting is ranges from 3.5% to 29.5%.several population are at increased risk. Quadriplegic client, older adults with femoral fractures, and client in critical care units have the highest risk. Prevention of heelulcer begins with identifying the client risk. However all these data shows the lack of quality care.

Recurrence of heel ulcer should be anticipated, therefore active preventive interventions essential .The patient's tolerance for lying on the healed ulcer area is increased gradually by increasing the time that pressure is allowed on the area in 5-15 minutes increments .early recognition and intervention is essential to prevent the unwanted problems.

Untreated heel ulcer can lead to serious complications. It is the responsibility of the health care provider to prevent the heel ulcer in cost effective manner. Water gloves application is the one of the best intervention which helps these health care providers to manage the heel ulcer in an effective way.

Though it is not practiced in wide settings, use of water gloves to manage heel ulcer, can reduce the cost of care although gloves are easily available in all settings.As people are unaware of using gloves as cost effective and efficient method in managing the heel ulcer.So

the researcher chooses this study to propagate this intervention on a wide spread in all health care settings.

The investigator personal experience with bed ridden patients strengthens the data stated above. Investigator worked as a clinical instructor in a 150 bedded hospital, and witnessed that all most all bed ridden patients frequently getting the complaints of heel ulcer. And also the lack of availability of comfort devices and its high prizes increases the chance for getting bedsore.

Once heel ulcer developed, it is difficult to cure. So interventions are very useful in management of heel ulcer among bedridden patients not only in hospital settings and also in community.

STATEMENT OF THE PROBLEM;

"A Study To Assess The Effectiveness Of Water Glove Application On Risk Reduction Of Heel Ulcer Among Bedridden Patients In Erode Medical Centre Hospital,Erode."

OBJECTIVES

1. To assess the heel ulcer score among the bed ridden patients before and after water glovesapplication.
2. To assess the effectiveness of water gloves among heel ulcer patients.
3. To determine the association between pre test heel ulcer among bedridden patients with their selected demographic variables.

HYPOTHESIS;

1. H1; There will be a significant difference between the mean pre test and post test heel ulcer score among bedridden patients

2. H2;. There will be significant effectiveness of water glove application among bedridden patients.
3. H3; There will be a significant association between the posttest heel ulcer score among bedridden patients with their selected demographic variables.

OPERATIONAL DEFINITIONS;

A. Assess;

It is the action of making a judgment about the value or quality of something. In this study , the word assess refers to the process of checking the heel ulcer among bedridden patients.

B. Effectiveness;

Effectiveness is the outcome of water glove application with regard to risk reduction on heel ulcer

C. Water gloves Application;

It refers to unpowered rubber gloves with water to be kept on the pressure area.

D. Risk Reduction of heel ulcer ;

Its refers to reduce the occurrence of heel ulcer

E. Bed ridden patients;

It refers to the patients who are completely staying in the bed.

ASSUMPTIONS

1. Bed ridden patients may have high risk for occurrence of heel ulcer
2. Water gloves application may reduce the worsening of heel ulcer .
3. Heel ulcer may vary with their selected demographic variables.

DELIMITATIONS;

The study was limited to,

- 40 bedridden patients
- Patient who were able to understand English and Tamil
- Patients with heel ulcer in mild risk(15-18 score)
- Those who were on ventilator

CHAPTER –II

REVIEW OF LITERATURE

"There is neither this world

Nor the world beyond

Nor happiness for the

One who doubts."

–....SrimadBhagwatbGeeta

Literature is "a text of a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. Literature reviews use secondary sources, and do not report new or original experimental work".

–Basavanthappa 2001

Review of relevant literature as evidenced is the essential background for my research. It refers to both the activities involved in searching for information on a topic as well as to the actual written report the summarizes the state of the existing knowledge on a topic in generally facilitated by the use of various obstructing and indexing services.

Literature review is a key step in the research process. Polit and Hungler (2003)defined review of literature as " A bread comprehensive , in –depth ,systematic and critical review of scholarly publications ,unpublished scholarly printed materials, audio visual materials and personnel communications.

According to Basavanthappa, (2001)" It refers to extensive, exhaustive, systematic examination of publications relevant to the research project".

The investigator did an extensive review of the research and non research literature related to the present study and made on attempt to contribute to a deep insight into problem area and methodology. In order to accomplish the goalin thepresent study , an attempt has been made to review and discuss the literature under following sub headings.

i. **Literature related to Risk reduction of heel ulcer**

ii. **Literature water glove application for risk reduction of heel ulcer**

iii. **Literature related to complimentary therapy for risk reduction of heel ulcer.**

I. Literature related to Risk reduction of heel ulcer

A study conducted (2018)on "perception of pressure ulcer among young men with spinal injury" .About 1000 younger people each year suffer a traumatic spinal cord injuries that leaves them wholly or partly paralysis. The majority of these individuals are males. The results suggest that there men were knowledgeable about pressure management and highly motivated to look after themselves but there were an over reliance on the specialist unit for support.prevention is feasible.

A quasi experimental(2018) study conducted for "evaluation of an evidenced based program for prevention". The purpose of the study was to implement and evaluate a foot ulcer standardized workshop for and two levels of nursing staff. A quasi experimental design was used. The convenient sample included were registered nurses (n=595) and licensed practitioner nurses (n=59) employed in there acute care hospital with a total bed capacity of 1760. The questionnaire was given before the pre-test post-test with three month duration. Data was analyzed using descriptive statistics. The result was general knowledge course for the total groups were significantly higher. The evidence

based foot ulcer education was effective increasingly in registered nurses and licensed practical nurses knowledge.

A prospective, longitudinal study (2018)was conducted to assess use of continuous and reactive low-pressure mattresses to reduce foot ulcer between bony prominences and sleep surfaces, as well as pressure from the use of medical devices, put children admitted to pediatric intensive care units (PICUs) at risk of developing foot ulcer (PUs). To assess the effect of two pediatric-specific, continuous and reactive low-pressure mattresses on the incidence of PUs, an observational, descriptive, prospective, longitudinal (2009-2011) study was conducted among pediatric intensive care units patients. The two pediatric mattresses - one for children weighing between 500 g and 6 Kg and another for children weighing more than 6 Kg - were provided to patients at risk for PUs (Braden-Q ≤16, Neonatal Skin Risk Assessment Scale [NSRAS] ≤13, or per nurse assessment of clinical need). Between 2009 and 2011, 30 children (13 [43.3%] girls and 17 [56.7%] boys), ages 0 to 10 years, at risk of developing foot ulcer (NSRAS risk: n = 14 [13.2 ± 3.03] and Braden-Q risk: n = 10 [10.4 ± 2.4]) were placed on the study mattresses for a median of 4 (range 1 to 25) days. Primary reasons for pediatric intensive care units admission included disorders of the respiratory system (40%), infectious and parasitic diseases (23.3%), and illnesses of the musculoskeletal system and connective tissue (10%). All other foot ulcer prevention strategies (e.g., repositioning, specialty devices) used as part of standard care protocols also were implemented. Of the 30 participants, only one (3.3%) (Confidence interval [CI] 95% = 0.08 -17.2%) developed a no device-related Pressure Ulcer. No adverse events occurred. A 2008 incidence study in the same pediatric intensive care units, before use of these special surfaces, found a cumulative incidence of 20% no device-related PUs. The observed incidence rate of nonmedical device-related foot ulcer in this

high-risk population placed on these mattresses is encouraging and warrants future research.

A study was conducted by **Singh.R,DhanakarSS,Rohilla.R on February (2018)** about quality of life of people with spinal cord injury in India, Identify any association between clinical variable and quality of life, and finally to see the input of remedial measures taken to the quality of life over time. Thirty six (72%)men and 14 (28%) women participated. Mean age and duration of injury were 37.7 and 3.7 years respectively. Bladder problems (44%), bed sores(36%), gastro intestinal problems(56%),naturopathic pain(42%)and spas city(60%)were the most common medical problem. It is reasonable to believe that understanding and taking appropriate remedial measures through more role in enhancement of quality of life in persons with spinal cord injury.

A study was conducted by Rosalind Elliot**, Sharon McKinley on (2017)** regarding quality improvement program to reduce the prevalence of foot ulcer in an intensive care unit, America. In which 563 survey of patients skin were preformed during 22 audits conducted during a 26- month period .one –on –one clinical instruction was provided to bed side nurses during the survey, and foot ulcer data were displayed in the clinical area. The prevalence of pressure sore were decreased from 50% to 8% The appropriate allocation of pressure- relieving devices increased from 75% up to 95% to 100%. This program was s in reducing the prevalence of foot ulcer among vulnerable intensive care patients and indicates that quality improvement is a highly effective formula for improving patient outcomes.

A study was conducted by **Trudic young, Bill Haughton (2015)** regarding pressure area management in an orthopedic setting. Pressure area care for patients who have undergone hip replacement is extremely difficult as patients morbidity

tends to be restricted because fear of dislocation. Orthopedic surgeons influence positional changes and techniques used by the in the postoperative period. A pilot study using nimbus II mattress was carried out to establish the role of alternating pressure mattress in the postoperative management of patients undergoing elective/emergency hip surgery. none of the patients suffered from the prosthetic dislocation and 87% did not foot ulcer. The result in force the use of alternating – pressure mattresses in the postoperative management of patient undergoing hip replacement surgery.

Ling Fu Shaw.et.al., (2014), done a cohort study on incidence and associated riskfactors for pressure ulcers amongst the population of surgical patients, total of 297 patients admitted to a teaching hospital for a surgical operation Taipei, were taken. The Braden scale, pressure ulcers record sheet, and perioperative patient outcomes free from signs and symptoms of injury related to positioning and related nursing interventions and activities were collected the incidence of immediate and thirty-minute-later pressure ulcers is 9.8% (29/297) and 5.1% (15/297), respectively, admission Braden score, and number of nursing intervention after adjustment for confounding factors. Study conclude that admission of Braden score and number of nursing intervention are well-established to protected from pressure ulcers development.

NahlaTayyib,et.al.,(2013) done a literature review of patient risk factors and risk assessment scales on Critically ill patients are at high risk for pressure ulcer in adult intensive care units. A literature search from 2000 to 2012 using the CINHAL, Cochrane Library, EBSCO Host, Medline (via EBSCO Host), Pub Med , Pro Quest and Google Scholar databases was conducted. Nineteen articles were included in this review; 8 studies addressing Pressure Ulcer risk factors, 8 studies addressing risk assessment scales and three studies overlapping both. Results from the studies reviewed identified 28

intrinsic and extrinsic risk factors which may lead to pressure ulcer development and no existing risk assessment scales are valid for identification high risk critically ill patient, with the majority of scales potentially over-predicting patients at risk for Pressure Ulcer development.

Salam Jibanlata Devi,et.al.,(2013), done an evaluative study on effectiveness of comfort measures and repositioning in prevent pressure ulcers in hospitalized bedridden children. Using purposive sampling technique, 40 bedridden children were enrolled in the study. Protocol on the use of comfort measures and repositioning technique were developed. Daily assessment sheet and repositioning schedule proform as were used to record the findings related to development of pressure ulcer. The intervention and daily assessment were continued till the patient got discharged from the hospital or for 14 consecutive days after identifying the children who are at risk of developing pressure ulcer. On the day of enrollment 41.6% were on 'high risk' category and 20.9% were on 'Very high risk' category of developing pressure ulcer as per the Braden scale. On the 14th day of intervention the significant decrease was found in the number of bed ridden children falling under the 'very high risk' and 'high risk' category of developing pressure ulcer ($x^2 = 72.1$, $p<0.00$).None of the child developed pressure ulcer during their hospital stay.

Somnath Saha,et.al.,(2013), done a qualitative analytical study on pressure ulcer treatment strategies, by comparing the effectiveness and safety of pressure ulcer treatment strategies, study reviewed 7274 titles and 1836 full length articles and 174 trial and observational studies, they found that moderate strength evidence that some interventions were associated with wound improvement, including the use of air filled beds, protein containing nutritional supplements, radiant heat dressing.

II. .Literature water glove application for risk reduction of heel ulcer

William C J wound care . (2016),A small a study set out to evaluate the pressure difference between the heels on a mattress and on a latex glove filled with 260ml water (the mean volume in local practice) the study also explored the popularity of the using a tally pressure evaluator interface pressure on the mattress was 126.5 mmHg (range 104-143) and on a water filled glove mean interface pressure was 144.6mmhg (range123-159). A questionnaire survey of wards and nursing homes revealed that 79.4% of ward respondents had seen or employed the practice of using water filled latex gloves to relieve pressure on the heel. It would seem that water filled gloves are a popular but ineffective method of preventing pressure damage.

Ulrika Kallman (2015), has conducted a evaluative study on repositioning in pressure ulcer prevention in Netherland, 62 elderly immobile patients were selected as conveniently and movements were done either by nursing staff or by care givers in the family, moving sense monitoring system used that compared with register with nursing records, the study concluded that the interface pressure was significantly higher in 0 degree supine and 90 degree lateral position, compared to 30 degree supine tilt and 30 degree lateral position shows no difference. The study concluded that immobilepatients are particularly vulnerable to pressure sore, these patients need to be repositioned more frequently

Manjeet Singh Dhanda (2015) had done a prospective study on prevalence and clinical evaluation of Pressure Ulcers from neurological wards of a tertiary care teaching hospital in Hariyana, India, from July 2009 to August 2014 among 228 patients seeking care. Braden scale was used for predicting pressure ulcers in the study subjects. All patients showing the potentiality of developing clinical signs of bed sores selected and

put on the study list. Patients aged and the worst pressure sores were excluded from the study. Out of total 228 study subjects, 61 subjects developed pressure ulcers giving a p value of 26.75%. According to Braden Scale, 16.39% of patients were at high risk for developing the pressure ulcers.

Locker-Stevens N .J Wound care (2014),water filled gloves are used regularly to prevent pressure ulcer development on patients heels. The efficacy of such flotation therapy is dependent on achieving the correct therapeutic pressure , but water filled gloves tend to be applied haphazardly. A small scale study measured pressure on the heels of three voluntaries of volunteers of varying weight,using three sizes of gloves filled with varying amount of water . Results showed that water filled gloves provide a degree of pressure relief, but insufficient to prevent occlusion. The study did not demonstrate any easily recognizable pattern for assessing the correct volume of water relative to the weight of the patient and the size of the glove.

International journal volume 7,issue 6 December (2013),this cross sectional descriptive survey examined use of water filled gloves by nurses in the prevention of heel pressure ulcer (PU) in the university college of hospital (UCH), Ibadan Nigeria. Participants were 250 purposively selected nurses working in the neurosciences and surgical units. Quantitative data were generated through the administration of a semi structured questionnaire , whereas the qualitative data were collected through in –depth interview. Hypothesis were tested using chi-square analysis at a significance level of 0.05 ,whereas the manual content analysis was used to analyze the qualitative data. Results showed that a significant number of nursesat UCH, Ibadan, were knowledge about WFGs and actually used them in their clinical practice . Years of experience in clinical practice was found to be significantly related to knowledge and use of WFGs in heel PU (x^2=4.527; DF = 1; p=0.033). Although the knowledge level and perception of

WFGs and its use by nurses was fairly adequate , continuous education for practicing nurses should be encouraged in resource –limited settings.

International wound journal volume 4 issue 3 September (2013), this meta analysis investigated the effectiveness of a pressure relieving intervention on the incidence of heel pressure ulcer in a variety of settings. Literature searches of cumulative index to nursing and allied health literature , MEDLINE, PubMed, EMBASE and Cochrane databases were conducted for English languages articles that investigated the effect of pressure relief intervention with or without concurrent prevention programs on the number of heel ulcers occurring on adult humans in a controlled clinical design full articles were selected from citation s based upon consensus between at least two independent reviewers . Methodological quality of each study was assessed using the jaded and PEDs scales. A quantitative analysis was performed to determine and compare relative risk between pressure relief program /Devices that were classified according to similarly of interventions.

Fourteen studies that involved a total of 1457 subjects were selected from a total of 105 full articles reviewed .Pressure-reducing/relieving surface were associated with a significantly lower incidence of heel ulcers compared with standard hospital mattresses (RR = 0.50, 95% Cl = 0.26-0.93, $p<0.03$). Foam mattresses also significantly reduced the risk of developing heel ulcers. There is evidence to support the use of certain air or foam mattresses/overlays in the prevention of heel pressure ulcers when compared with a standard hospital mattress. There is insufficient research available at this time to determine if heel-protective devices can prevent heel pressure ulcers. These results need to be interpreted with caution given the relatively low number and poor quality of research articles available to date.

A similar study by **Williams (2012)** used gloves filled with 260ml of water, an amount based on an examination of six gloves. In this study of 40 people, again comparing the pressure exerted by an ordinary mattress with a exerted by a water filled gloves, the heel pressures were on average 12.5% higher with the gloves, leading the author to conclude that the use of water filled gloves was ineffective and ritualistic. An additional concern was that tape or bandages used to position the glove to the damaged tissue.

A small study **(Lockyer –Stevens, 2013)** used non sterile disposable latex gloves of different sizes filled with varying volumes of water. Heel pressure were measured on an ordinary mattress surface with an without gloves. Although the gloves exerted lower pressures than the mattress surface, none exerted a pressure below the "Landis mean" of 32mmHg. In addition the volunteers remain the still; in reality patients often move, which could affect the gloves positioning and the pressures exerted. Locker-Stevens also reported that a standard NHS mattress was used. Had the heel pressures been compared using a modern pressure reducing surface, the findings might have been considerably different.

III. Literature related to complimentary therapy for risk reduction of heel ulcer.

A literature review is summary of previous research on a topic which can be either a part of a large report of a research project, a thesis or bibliographic essay that is published separately in scholarly journal. The purpose of literature review is to convey the reader what knowledge and ideas have been established on a topic and what are the strength and weaknesses.

A comparative study**HAESLER E 2017** was conducted among one hundred sixty-two patients to determine the effectiveness of two cushions in the prevention of heel pressure ulcers in a geriatric population over 75 years of age. All patients were lying on a viscoelastic foam mattress and were repositioned every 4 hours. The incidence of heel pressure ulcers grades 2-4

was 1.9% in the wedge-shaped cushion group and was 10.2% in the pillow group. The study provided evidence that a wedge-shaped, bed wide, visco elastic foam cushion decreased the risk of developing a heel pressure ulcer compared with the use of a pillow.

A prospective study **LINUS GREEN 2016**was conducted to assess the risk of a heel pressure ulcer included 100 patients from medical and surgical wards. Data were collected on admission, and subjects were followed up at regular intervals. The Water lowa heel pressure ulcer risk assessment tool was completed and patients were stratified "as not at risk," "at risk", "high risk", and "very high risk".Out of 100 patients studied, 20% were at risk, 10% were assessed at high risk, and 7% were classified as at very high risk for developing a heel pressure ulcer. Necessary preventive measures were taken (posture change, specialized beds/mattresses, nursing care, nutritional input, etc) for those patients at risk of development of a heel pressure ulcer. Four of 7 patients (57.1%) who were at very high-risk developed a heel pressure ulcer as compared with 2 of 10 patients (20%) categorized in the high-risk category within a period of 2 weeks.

A cross-sectional study was identified **the National Pressure Ulcer Advisory Panel (NPUAP 2016)** the prevalence of a heel pressure ulcer among elderly people living in long-stay institutions in Sao Paulo, Brazil. Demographic and clinical data were collected in six long-stay institutions on two visits to each institution between May and August 2007, during which all elderly patients with a heel pressure ulcer were evaluated. The Braden scale was used to identify the risk of developing a heel pressure ulcer and stages for classifying the a heel pressure ulcer. Statistical analysis was performed using the chi-square test, Student's t-test and Fisher's exact test. The population was 181 elderly people in May and 184 in August: 23 had a heel pressure ulcer in May (prevalence of 12.7%) and 17 in August (prevalence of 9.2%). The

mean age at the two times was 84 years, and the average length of stay was 32 months. The prevalence of a heel ulcer was 10.95%.

Two-phase non-experimental study **INTERNATINAL JOURNAL OF NURSING STUDIES 2015**was conducted to assess the heel pressure ulcer risk on admission and discharge of critically ill patient. They were scored according to the Water low system or the Stripling Pressure Sore Severity Scale. There was no significant relationship between Water low score and mobilization (χ^2=3.2, DF=4, p=0.530) or between Water low score and severity of sore (df=4, p=0.7265). The Water low Risk Assessment Scale appears to be unreliable when used in clinical practice.

A survey instrument was developed to capture experience, ease of use, and perceived utility and weakness of the PUSH tool over 120 respondents, and samples are collected through a convenience sample identified through the National Pressure Ulcer Advisory Panel Web site as users or registered users of the PUSH tool. And study concluded that PUSH easy to use and helpful in a heel pressure ulcer management.

A randomized controlled study **Manjeet Singh Dhanda (2015)** was conducted over 40-50 samples to determine differences between alternating pressure overlays and alternating pressure replacement mattresses with respect to the development of new a heel pressure ulcer. Patients were randomized to either an alternating pressure overlay or an alternating pressure mattress replacement. And study showed that there was no difference between alternating pressure mattress replacements and overlays in terms of the proportion of patients developing new a heel pressure ulcer; however, alternating pressure mattress replacements are more likely to be cost-saving.

A prospective single blind randomized controlled clinical trial **Ulrika Kallman (2015),** was used to compare heel pressure ulcer outcomes in medial ICU patients nursed on either a reactive mattress overlay or an active alternating pressure mattress. Patients included in the study were those at high risk (Norton scale <8) or with a pressure on admission. The two groups had similar patient characteristics. The progress of the ulcers showed significant decreases in heel pressure ulcer surface area (p=0.05), total PUSH tool score (p=0.01). Study suggested that 'active' alternating therapy is a useful adjunct in the care of highly vulnerable patients, while the outcomes may be less favorable when using 'reactive', constant low pressure devices.

A comparative study was **Sukhpal Kaur,et al., (2015),** conducted to determine the effect of massage air bed in preventing heel pressure ulcer of critical patients. Critical patients lying in bed or with serious difficulty in turning over were divided into two groups, the study group using massage air bed, the control group using ordinary air bed. All the patients were kept clean and dry, compared the effect of heel pressure ulcer prevention in the two groups. Study showed that prevention effect and turning interval of the two air bed is significant different (P0.05). And study concluded that massage air bed is better than other methods to prevent heel pressure ulcer, which prolongs the turning interval and saves manpower, and is especially practical on critical patients.

A nursing study was**Ling Fu Shaw.et.al., (2014),**conducted to assess the effect of changing position in managing the heel pressure ulcer among older adult. Researcher, divided older adults into three turning treatment groups (every 2 to 3 hours [*n* = 32], every 4 hours [*n* = 27], or turned two to four times/day [*n* = 41]) Researchers found that older adults turned every 2 to 3 hours had fewer ulcers. Study concluded that reducing the pressure on pressure

points is more effective in managing the heel pressure ulcer. This landmark nursing study created the gold standard of turning patients at least every 2 hours.[22]

One randomized controlled trial that studied a small sample of 46 elderly patients in the 30-degree-tilt position and the standard 90-degree side-lying position found no significant difference in the development of heel ulcer between the two group.

In one prospective study, **SalamJi banlataDevi,et.al.,(2013),**high-risk patients who were undernourished on admission to the hospital were twice as likely to develop heel pressure ulcer as adequately nourished patients (17 % and 9 %, respectively).[24] In another study, 59 % of residents were undernourished and 7.3 % were severely undernourished on admission to a long-term care facility. Heel pressure ulcer occurred in 65 % of the severely undernourished residents, while no heel pressure ulcer developed in the mild-to-moderately undernourished or well-nourished residents. Study concluded that nutritional intake play vital role in bedsore prevention.

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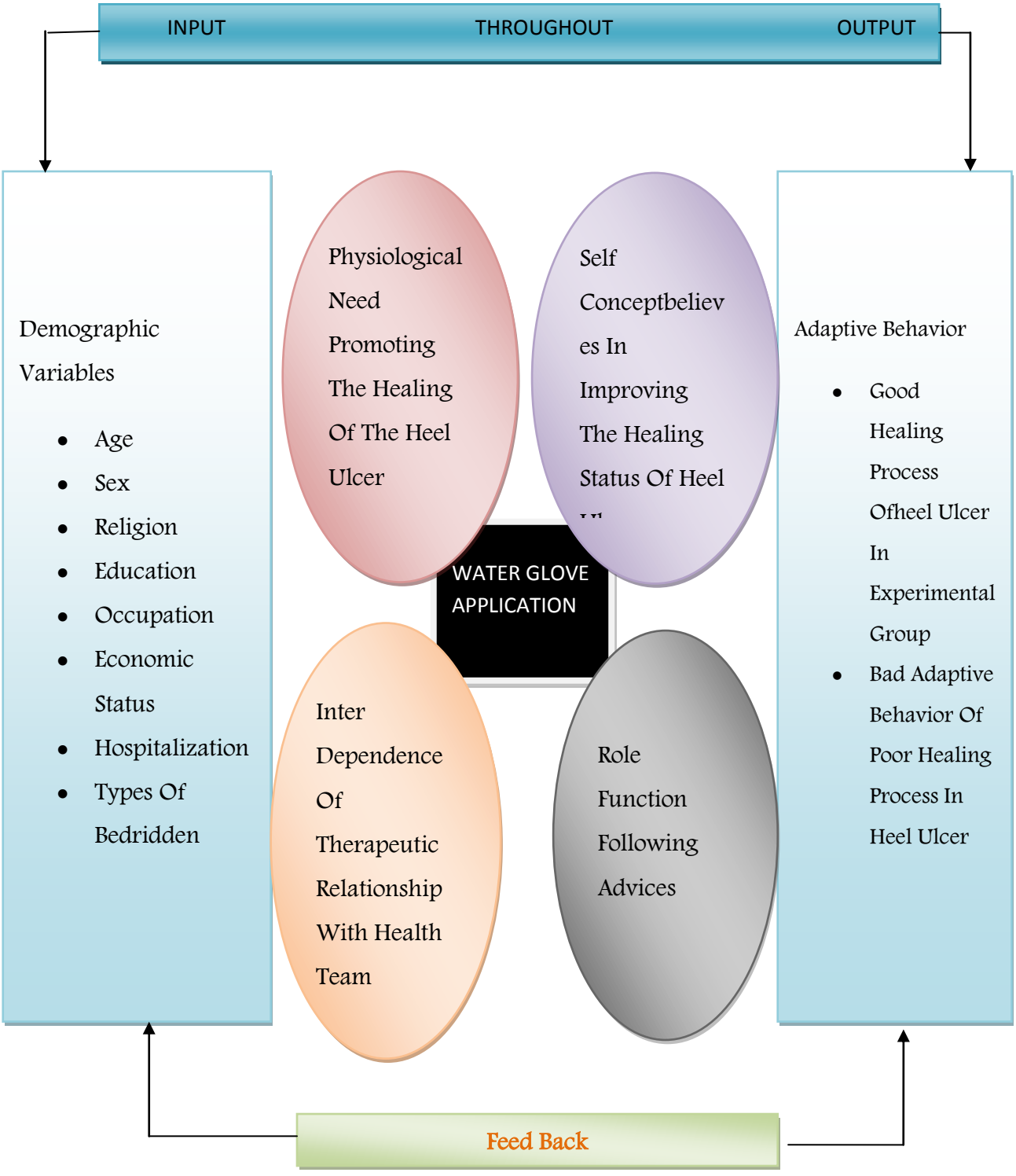
CONCEPTUAL FRAME WORK- ROY'S ADAPTATION MODEL 1999(modified)

Fig ; 1



CHAPTER – 3

METHODOLGY

Abdhullah (1979) said that, methodology is a significant part of any study which enables the researcher to project the research undertaken.

Methodology of research of organizers all the components of the study in a way that is most likely to lead to valid answers to the problem that have been posed.

BURNS AND GROOVE, 2002.

Research methodology is a systemic way to solve the research problem and also carry out the academic study and research in a correct manner.

POLITE AND BECK, 2004.

The chapter deals with the methodological approach adopted for the study. The purpose of the study is to assess the effectiveness of water glove application on risk reduction of heel ulcer among bedridden patients.

The methodological includes description, settings, sampling techniques, development of the tools, validation of the tools, and the reliability, methods of data collection, pilot study, and plan for statistical analysis.

RESEARCH APPROCH

In view of accomplishing of the study an evaluative approach was considered most appropriate. Since the researcher want to assess the effectiveness of water glove application upon risk reduction of heel ulcer.

RESEARCH DESIGN

The research design refers to the researcher over all plan for obtaining answers to the research question and for testing the research hypothesis. The research design spells out strategies that the researcher adopt to develop the information that is adequate, accurate, objective and interpretable.

(POLIT D.F ,HUNGLER BP,1999)

A quasi experimental research design was adopted for conducting this study . It fulfills the criteria such as manipulation, non randomization and control.

SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

A quasi experimental research design was adopted for this study.

Selected patients	pretest	intervention	Posttest
Experimental Group	O_1	X	O_2
Control group	O_1	-	O_2

O_1 - Pre assessment of heel ulcer

O_2 - Postassessment of heel ulcer.

X - Interventions (water glove application)

VARIABLES

Variables are qualities, properties, characteristics of person, things or situations that change or vary.

BURNS NACY 2002

The variables mainly included in the study are dependent variable, independent variable and extraneous variables.

DEPENDENT VARIABLES

A dependent variables also known as a response variable regress and measured variables, explained variables, outcome variables, experimental variables and output variables. In this study dependent variable is risk reduction of heel ulcer.

INDEPENDENT VARIABLES

If the independent variables is referred to as an explanatory variable when the term response variable is preferred by some authors for the dependent variable.

BASAVANTHAPPA, 200

In this study, independent variablesis water glove application.

EXTRANEOUS VARIABLES

The extraneous variable in this study are age , sex, occupational status, educational status , economic status, religion, marital status, how long the patient is in hospitalization, grading of heel ulcer, and types of bedridden its measured by Braden scale.

SITE ;

The site selected for present study is Erode Medical Center Hospital, Erode.

SETTING ;

The setting selected for present study is ICU in Erode Medical Center Hospital, Erode.

POPULATION;

The population for the present study is all the bedridden patients with heel ulcer are in ICU in Erode Medical Center Hospital , Erode.

SAMPLE;

Bedridden patients with heel ulcer at Erode Medical Center Hospital , where those who met the eligible criteria.

SAMPLING TECHNIQUES;

Sampling is defined as the process of selecting a group of the elements with which to conduct study. In this study , Non probability purposive sampling technique was used to select the patients.

SAMPLE SIZE

Sample size is normally decided by the nature of the study, nature of the population selected to participate in a research study.

The total sample size selected for the present study was 40 out of which experimental group was 20 and control group was 20.

Experimental group	20
Control group	20
Total	40

SAMPLE SELECTION CRITERIA

- Inclusion criteria

  Bed ridden patients with

  a. Age group between21 – 60 yrs.
  b. Both genders.
  c. Who all are admitted in Erode Trust Hospital, Erode.
  d. Who all are willing to participate in this Study.

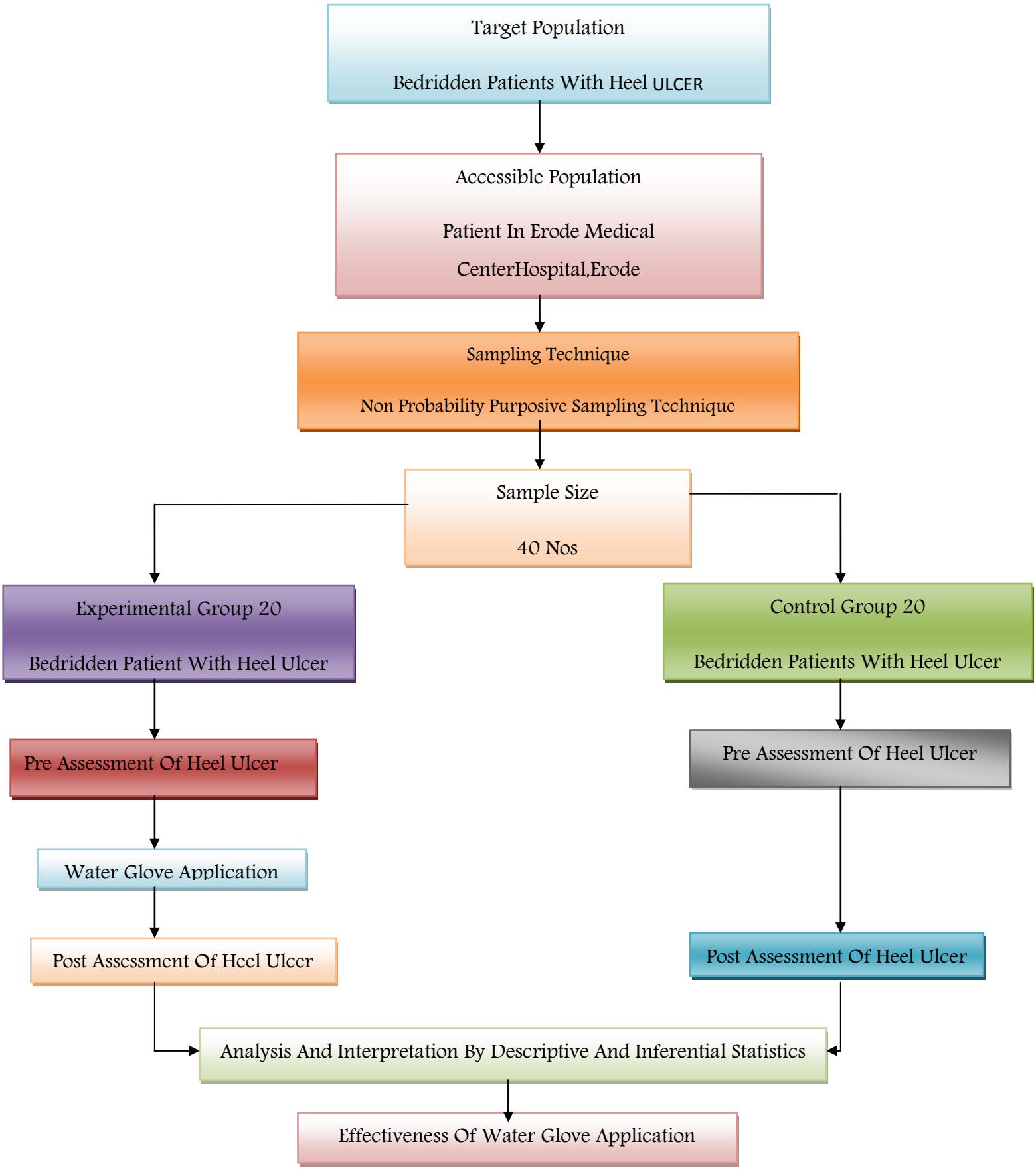
- **Exclusion criteria**

  Bedridden Patients who have

  a) Restriction to change the position.

  b) Second degree and third degree bed sore.

SCHEMTIC REPRESENTATION OF THE STUDY DESIGNS



DESCRIPTION OF DATA COLLECTION

Treece and treece emphasized that the instrument selected in research should be as far possible of the vehicle that would be best to obtain data for drawing conclusions that are pertinent to the study.

In this study the researcher has developed a tool after reviewing the literature to assess the level of heel ulcer among bedridden patients.

It has two section .

SECTION-A

Demographic Variables

Demographic variables which include age in years, sex, religion, education, occupation, family income, marital status,grading score of heel ulcer, causes of bedridden,duration of hospitalization

SECTION –B

Braden scale for predicting pressure sore risk.

Based on the Braden scale the level of heel ulcer was categorized as

BRADEN SCALE FOR PREDICTING PRESSURE SORE RISK (TABLE NO ;1)

Severe risk ; total score<9 high risk ; total score 10-12 Moderate risk ; total score 13-14 mild risk ; total score 15-18				Date of assessment
Sensory perception	Completely limited (1)	Very limited (2)	Slightly limited(3)	No impairment(4)
Moisture	Constantly moist (1)	Often moist(2)	Occasionally(3)	Barely moist(4)
Activity	Bed rest (1)	Chair fast(2)	Walks occasionally(3)	Walks frequently (4)
Mobility	Completely immobilize (1)	Very limited (2)	Slightly limited(3)	No limitations(4)
Nutrition	Very poor (1)	Probably inadequate(2)	Adequate(3)	Excellent(4)
Friction & Shear	Problem 1	Potential problem(2)	No apparent problem(3)	none
			TOTAL SCORE	

VALIDITY &RELIABILITY

VALIDITY

Validity refers to the degree to which an instruments what it is supposed to measure The content validity of the present tool along with the evaluation criteria.checklist was submitted to 5 experts in the field of Medical Surgical Nursing . There was 100% agreement by experts and minimal modifications were made in base line proforma based on the given suggestions.

RELIABILITY;

Reliability is defined as the extend to which the instrument yields the same results on repeated measure ; it is concerned with consistency ,accuracy, stability, and homogeneity.

In this study standardized **Braden Scale For Predicting Pressure Sore Risk** scale was used to measure the heel ulcer to the patients.

PILOT STUDY ;

A Pilot Study is a small preliminary investigation of the same general characteristics as the major study. It is designed to acquaint the researcher with the problems to be corrected in preparation for the larger researcher project and try out the problems for collecting the data . Pilot study was conducted to ensure validity and reliability of the tool and feasibility for giving intervention.

The pilot study was conducted in Be well hospital ,Erode District, Tamilnadu. After getting formal permission from the principal . 4 samples were taken during the pilot study . They were selected Non probability purposive sampling technique . 2 samples in experimental

group, and 2 samples in control group who fulfilled the inclusion criteria. Braden Scale For Predicting Pressure Sore Risk scale was used to collect data during pilot study.

DATA COLLECTION PROCEDURE:

The period of data collection was conducted for the six weeks. The formal return permission was obtained from the medical officer of Erode Medical Center Hospital , Erode.(DT).To carryout the main study by the investigator,The data was collected on all seven days of the week. The nature and purpose of the study was explained to the patient relatives. Oral consent was obtained from the patients and relatives. The samples were selected with non probability purposive sampling technique by quasi experimental research design.

The selected samples was allocated in two groups (group 1 experimental, group 2 control) the level of heel ulcer on pre test was checked for both groups by Braden risk reduction scale. The experimental group received water glove application in heel ulcer area for 30 minutes as in 4 times per day.

The immersion of heel in the water glove wasapplied as per the basis. The level of heel ulcer scored byBraden risk reduction scale and routine management was given for control group. The level of heel ulcer on post test was measured for both groups byBraden risk reduction scale.

PLAN FOR STATISTICAL ANALYSIS

Data analysis is the systematic organization and synthesis of research data and testing of research hypothesis using those data.

The data obtained was planned to be analyzed on the basis of objectives of the study using descriptive and inferential statistics.

- Organize data in master coding sheet.
- Demographic is to be analyzed in terms of frequency and percentage.

- Heel ulcer score was to be presented in forms of mean, percentage and standard deviation.
- Chi- square test was used to determine the association between level of heel ulcer among demographic variables.

S.N	DATA ANALYSIS	METHODS	REMARKS
1	Descriptive	Mean, Standard deviation,percentage.	Assess the level of heel ulcer among bedridden patients.
2	Inferential statistics	Paired 't' test	Comparison of pre and post test level of heel ulcer among bedridden patients.
		Unpaired 't' test	Comparison of post test level heel ulcer score between experimental and control group.
		Chi square test	Analysis the association between their selected demographic variable.

PLAN FOR DATA ANALYSIS:

The collection of data would be arranged and tabulated to represent the findings of the study. Both descriptive and inferential statistical would be used. Descriptive statistical members, percentage, mean and standard deviation were used to analyze the demographic data and clinical variable. For the description of demographic data simple percentage would be used.

Independent 't' test would be used to compare the post test level of heel ulcer score between the experimental group and control group .Chi square test would be used to find out the association between demographic variables and level of heel ulcer score on post test among experimental group.

ETHICAL CONSIDERATION:

The researcher obtained prior permission from dissertation committee to conduct pilot study at BEWELL Hospital, Erode (DT). The Written consent was obtained from each participants of study before starting data collection. Assurance was given to all adults & relatives to maintain confidentiality.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter will provide the result in a quantitative manner on the effectiveness of water glove application on heel ulcer in bedridden patients in selected hospital in Erode.

According to **"Nancy Burns and SulnaK. Groove"** data analysis is categorizing, manipulating and summarization of data to obtain answer to research question. The purpose of analysis is to reduce data to intangible and interpretable form for which the selection of demographic data can be studies and tested.

STATISTICAL ANALYSIS ;

The data obtained were classified, tabulated and the following analysis was performedin fulfilling the objective of the study.the data analysis involves the translation of the information collected during the course of the research project into interpretable, convenient, and descriptive terms and to draw inferences from them using statistical methods. The purpose of analysis is to summarize, compare and test the proposed relationships and inferential findings.

SPECIFIC OBJECTIVES:

1. To assess the heel ulcer score among the bed ridden patients before and after water gloves application.
2. To assess the effectiveness of water gloves among heel ulcer patients.
3. To determine the association between pre test heel ulcer among bedridden patients with their selected demographic variables.

DESCRIPTION OF DATA ANALYSIS ;

SECTION I ; DISTRIBUTION OF DEMOGRAPHIC VARIABLES

SECTION II ; ASSESSMENT OFTHE HEEL ULCER SCORE AMONG THE BED RIDDEN PATIENTS BEFORE AND AFTER WATER GLOVES APPLICATION

SECTION III ; ASSESSMENT OF THE EFFECTIVENESS OF WATER GLOVES AMONG HEEL ULCER PATIENTS.

SECTION IV; ASSOCIATION BETWEEN PRE TEST HEEL ULCER AMONG BEDRIDDEN PATIENTS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES

SECTION – I

DISTRIBUTION ANALYSIS OF DEMOGRAPHIC VARIABLES

This section deals with the analysis of the data collected from 40 bedridden patients with heel ulcer based on their specified inclusion criteria and is enplaned in frequency and percentage are represented.

Table 2 ; Frequency and percentage distribution of sample.

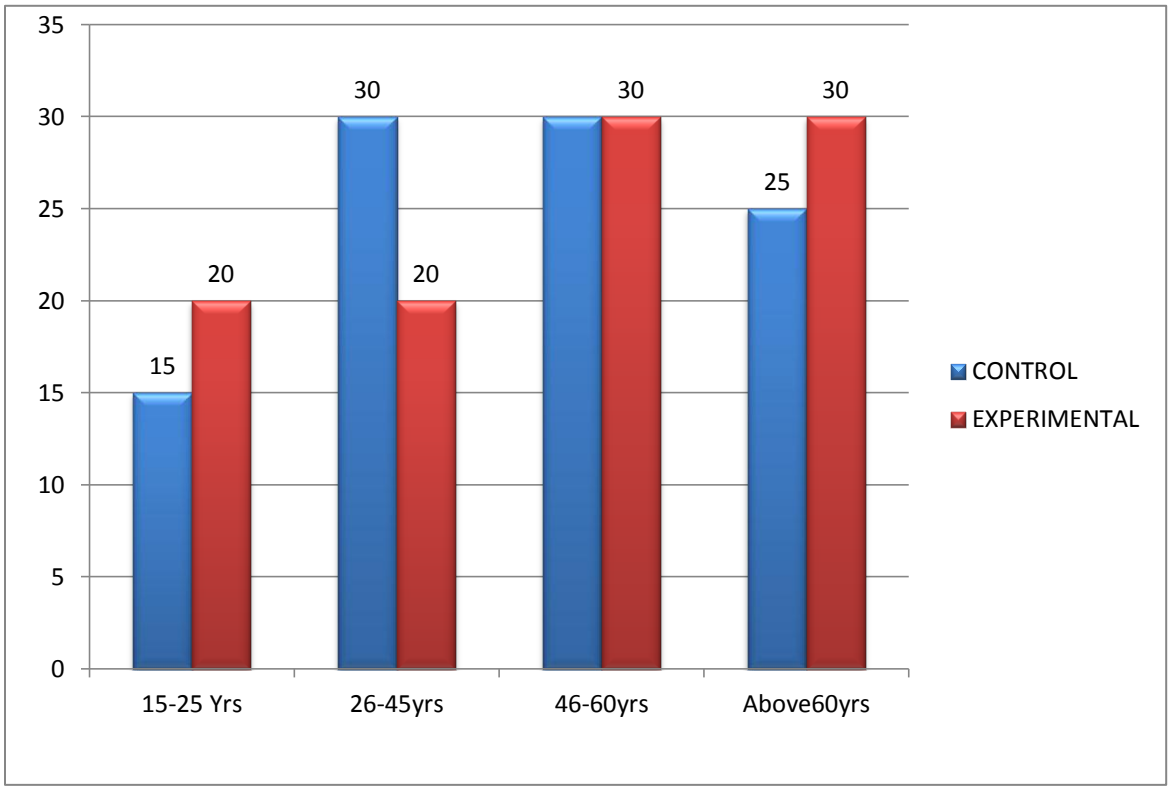
DEMOGRAPHIC VARIABLES:

Demographic variables		CONTROL GROP		EXPERIMENTAL GROUP	
		f	%	f	%
AGE	15-25	3	15%	4	20%
	26-45	6	30%	4	20%
	46-60	6	30%	6	30%
	Above 60 yrs	5	25%	6	30%
SEX	Male	11	55%	12	60%
	Female	9	45%	8	40%
	Transgender	0	0%	0	0%
EDUCATION	No formal education	7	35%	6	30%
	Primary education	3	15%	3	15%
	Secondary education	5	25%	4	20%
	Higher education	5	25%	7	35%
	Degree	0	0	0	0
OCCUPATION	Un employed	5	25%	5	25%
	sedentary workers	9	45%	8	40%
	self employed	5	25%	5	25%
	others	1	5%	2	10%

ECONOMIC STATUS	Low class	2	10 %	3	15%
	Middle class	12	60%	13	65%
	High class	6	30%	4	20%
RELIGION	Hindu	13	65%	14	70%
	Christian	4	20%	3	10%
	Muslim	3	15%	3	15%
	others	0	0%	0	0%
HOSPITALIZATION	10-15days	8	40%	10	50%
	16-25days	11	55%	9	45%
	1-2mon	1	5%	1	5%
	Above 25days	0	0	0	0
TYPES OF BEDRIDDEN	Ortho	7	35%	5	25%
	Neurological CVA	6	30%	5	25%
	poisoning	6	30%	8	40%
	Snake bite	1	5%	2	10%

Fig 3 ; Bar diagram showing the distribution of percentage of sample percentage according to age

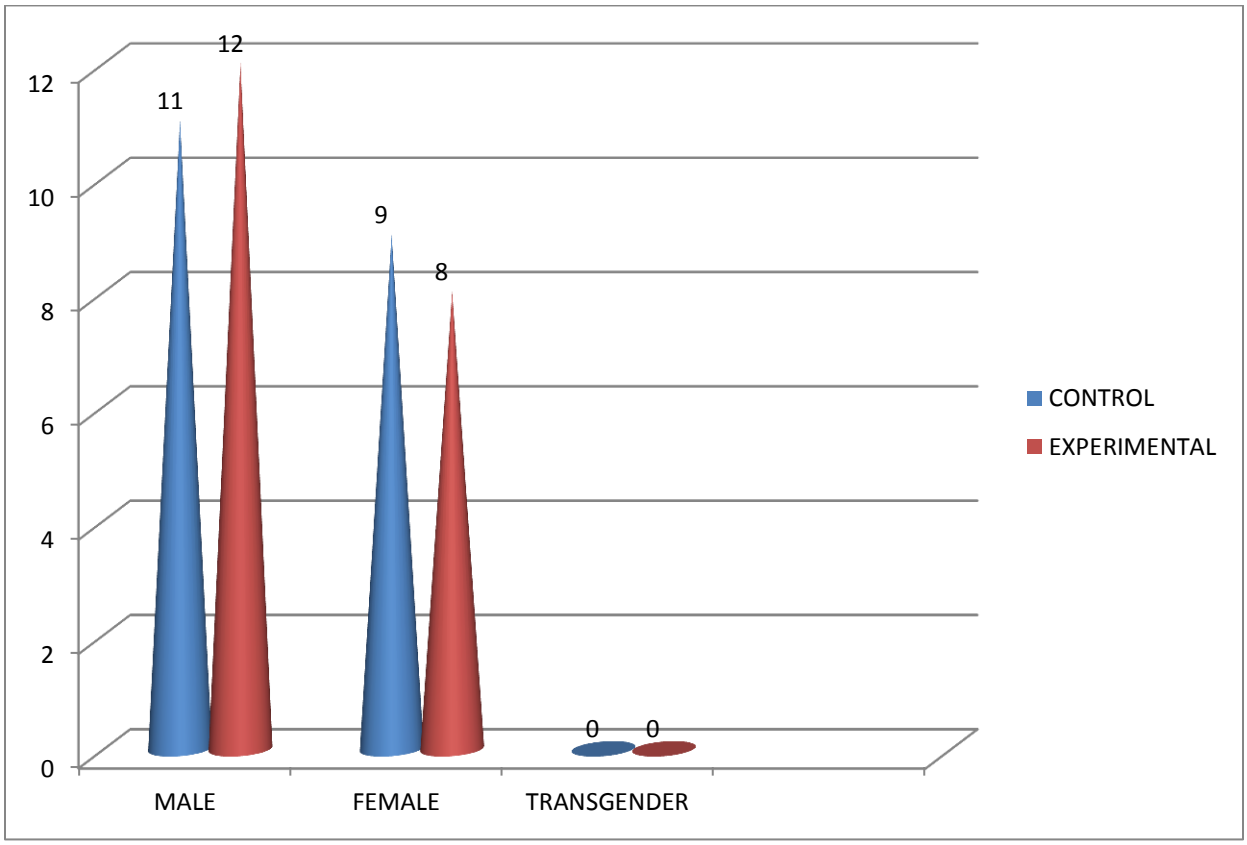
DEMOGRAPHIC DATA:- AGE



Among the respondents, 3(15%) were between the age group of 15-25 years, 6(30%) were between the age group of 26-45 years, 6(30%) were between the age group of 46-60 years, 5(25%) were between the age group of Above 60 years, 2 in control group. 4(20%) were between age group of 15-25 years,4 (20%) were in age group of26-45 years, 6(30%) were between age group of 46-60 years, 6(30%) were between age group of Above60 years in experimental group.

Fig 4 ; Conical diagram showing the distribution of percentage of sample percentage according to Sex

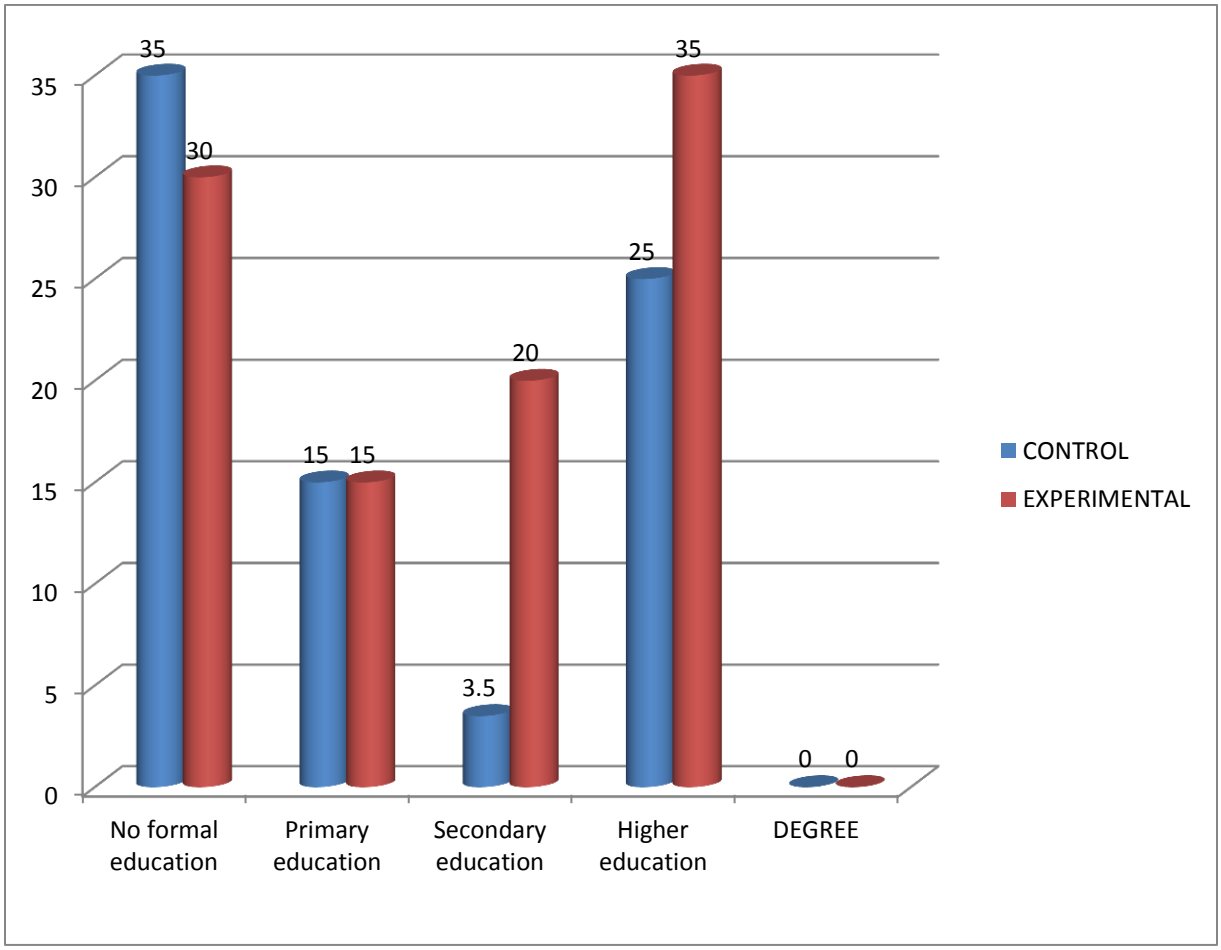
DEMOGRAPHIC DATA:-SEX



Regarding sex, 11(55%) were males, 9(45%) were females in control and 12(60%) were males,8(40%) were female in experimental group.

Fig 5 ;Cylidrical diagram showing the distribution of percentage of sample percentage according to **Education**

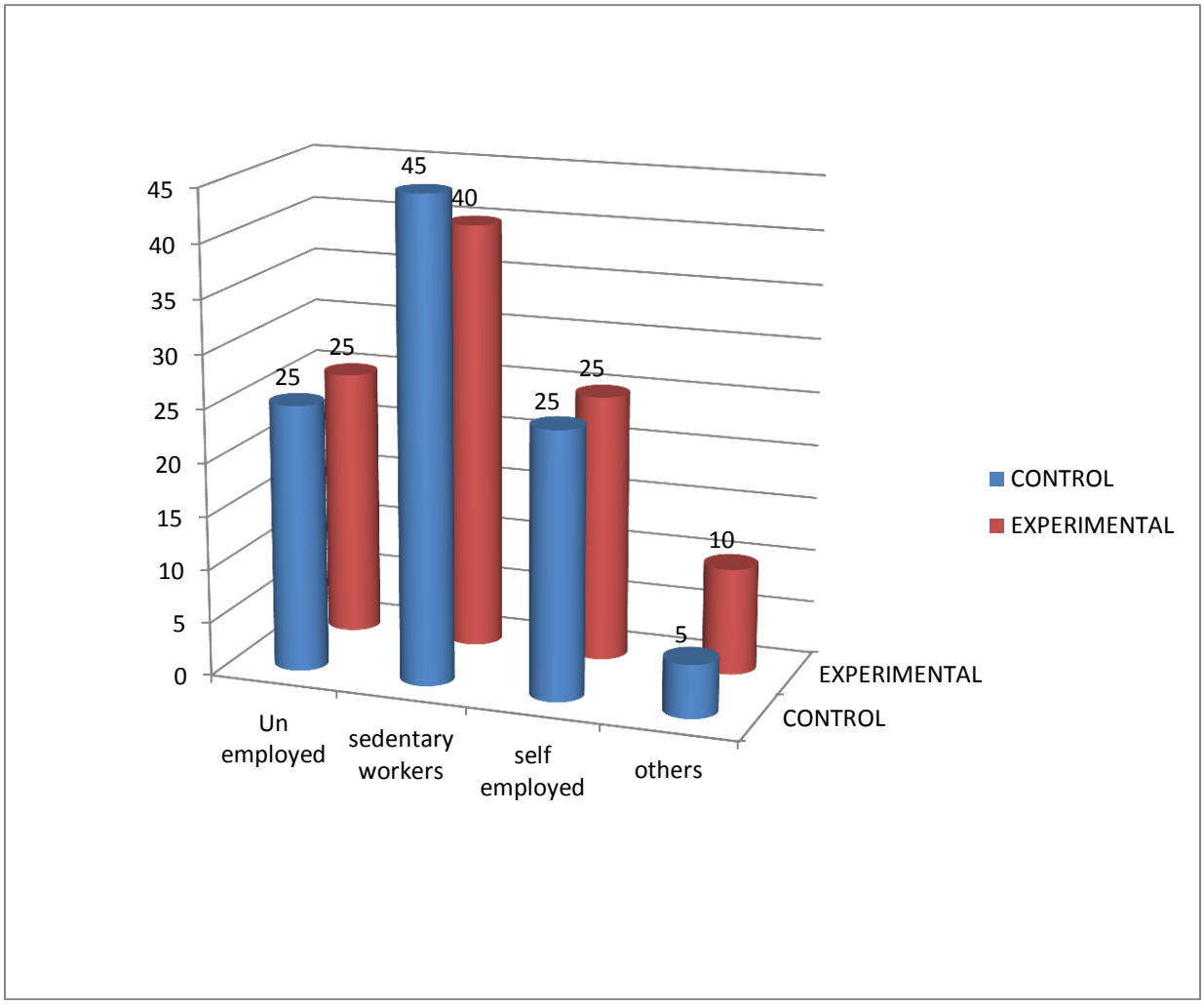
DEMOGRAPHIC DATA:-EDUCATION



With regard to educational status of the bedridden patients 7(35%) here No formal education, 3(15%) had primary education, 5(25%) had secondary education, 5(25%) had higher secondary education, 0(0%) were degree, in control group,6(30%) had formal education, 3(15%) had primary education, 4(20%) had secondary education ,7(35%) hadhigher secondary education, 0(0%) had degree in experimental group.

Fig 6 ;Cylindrical diagram showing the distribution of percentage of sample percentage according to Occupation

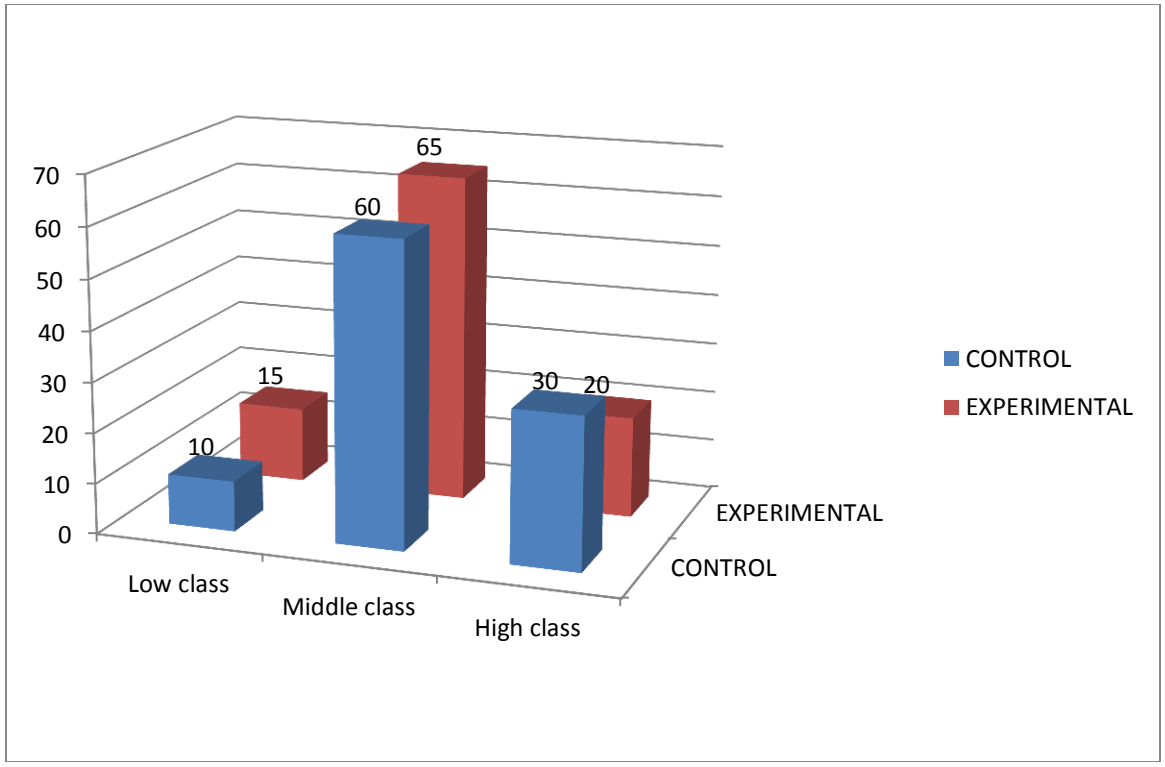
DEMOGRAPHIC DATA:-OCCUPATION



With regard to occupational status of the bedridden patients 5(25%) were unemployed, 9(45%) had sedentary workers, 5(25%) had self employed, 1(5%) had other workersin control group. 5(25%) wereunemployed, 8(40%) had sedentary workers, 5(25%) had self employed , 2(10%) had other workers in experimental group.

Fig 7 ;Cylindrical diagram showing the distribution of percentage of sample percentage according to Economic status

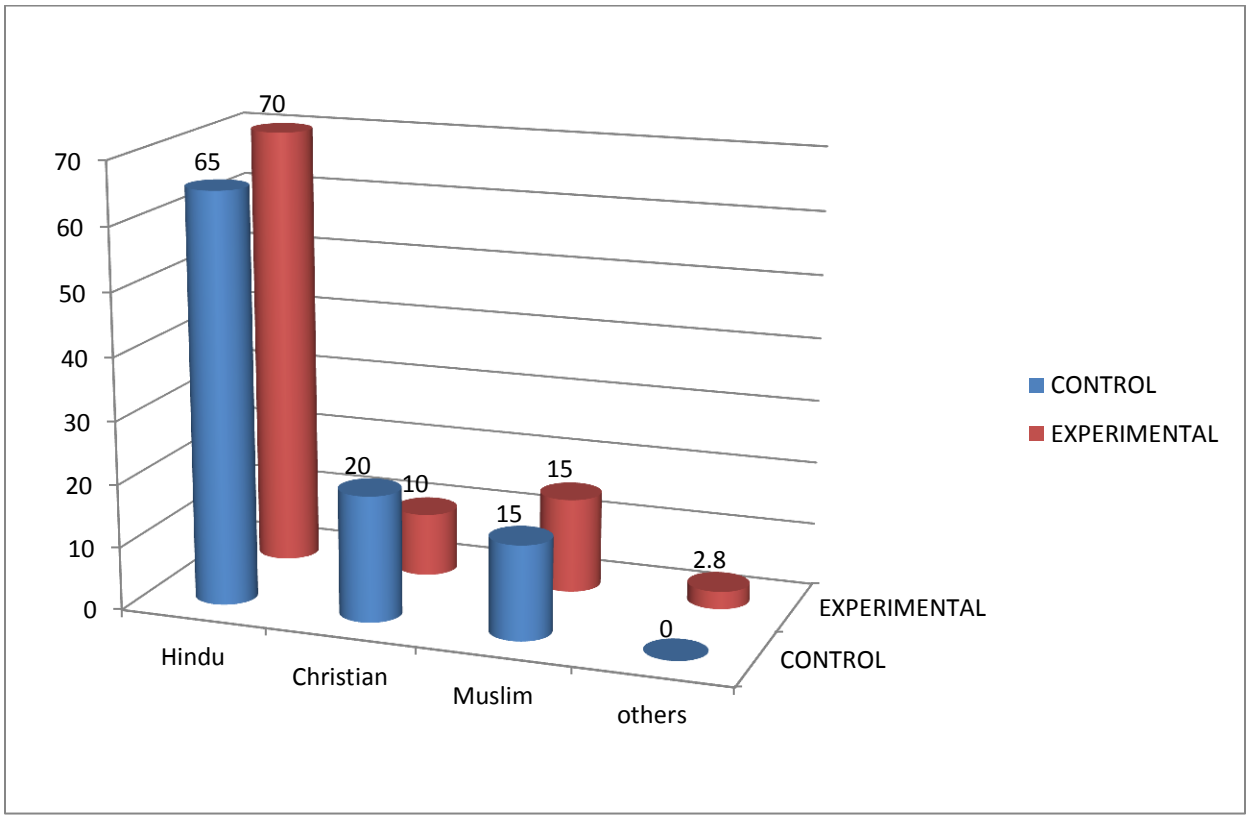
DEMOGRAPHIC DATA:- ECONOMIC STATUS



While considering family income, 2(10%) was low class, 12(60%)Middle class,6(30)was High class in control group.3 (15%) was low class, 13(65%) was Middle class 4(20%) was High classin experimental group.

Fig 8 ; Cylindrical diagram showing the distribution of percentage of sample percentage according to Religion

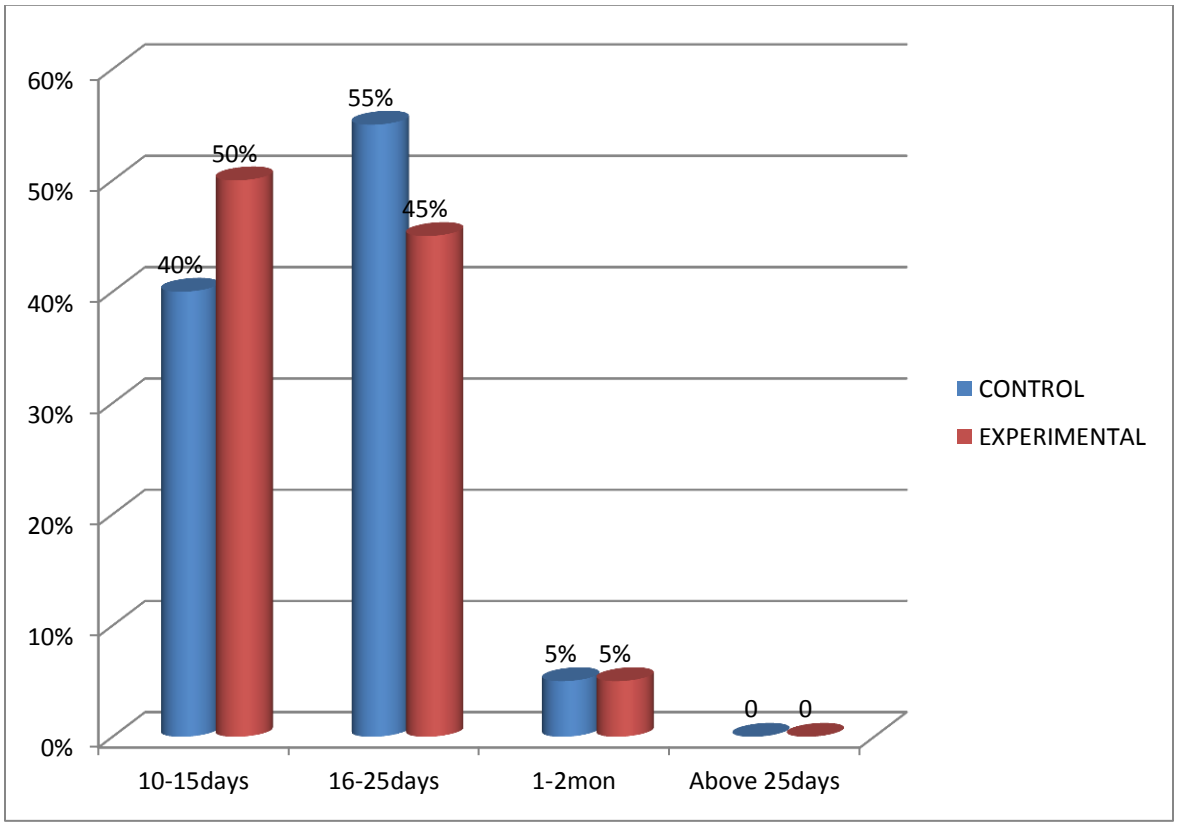
DEMOGRAPHIC DATA:-RELIGION



About religion, 13(65%) were Hindus, 4(20%) were Christians,3(15%) were Muslim in control group, 14(70%) were Hindus, 3(15%) were Christians, 3(15%) were Muslims in the experimental group.

Fig 9 ;Cylindrical diagram showing the distribution of percentage of sample percentage according to Hospitalization

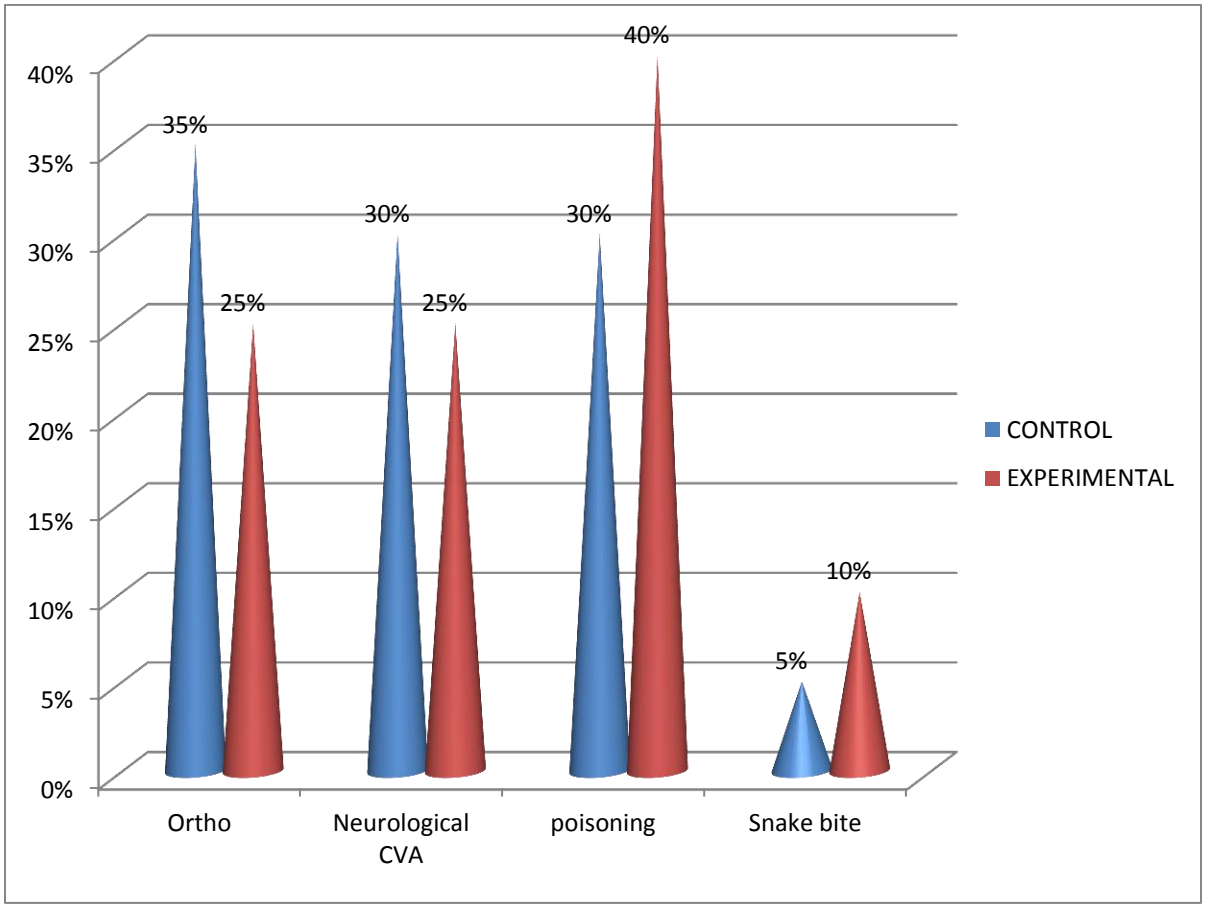
DEMOGRAPHIC DATA:-HOSPITALIZATION



About hospitalization, 8(40%) were 10-15 days, 11(55%) were 16-25days,1(5%) were 1-2months, above 60yrs of respondents 0(0%) in control group, 10(50%) were 10-15 days, 9(45%) were 16-25days,1(5%) were 1-2months, above 60yrs of respondents 0(0%) , in the experimental group.

Fig 10 ;Conical diagram showing the distribution of percentage of sample percentage according to Types Of Bedridden

DEMOGRAPHIC DATA:-TYPES OF BEDRIDDEN



About types of bedridden, 7(35%) were Ortho, 6(30%) were Neurological CVA ,6(30%) were poisoning , 1(5%) were Snake bite ,in control group, 5(25%) were Ortho ,5(25%) were Neurological CVA ,8(40%) were poisoning , 2(10%) were Snake bite ,in the experimental group.

SECTION - II

ASSESSMENT OFTHE HEEL ULCER SCORE AMONG THE BED RIDDEN PATIENTS BEFORE AND AFTER WATER GLOVES APPLICATION

An attempt had been made to assess the effect of heel ulcer among bedridden patients in the experimental and control group .After collecting the heel ulcer scores in both experimental and control groups before and after intervention the average score calculated . Based on the heel ulcer levels those were graded as normal , mild, moderate, high risk, severe risk.

TABLE 2 ; Assessment of heel ulcer score among bedridden patients in experimental group and control group ;(before intervention)

(n = 40)

S.NO	HEEL ULCER SCORE	CONTROL GROUP		EXPERIMENTAL GROUP	
		f	%	f	%
1	NORMAL(19-24)	0	0%	0	0%
2	MILD(15-18)	5	25%	7	35%
3	MODERATE(13-14)	5	25%	6	30%
4	HIGH RISK(10-12)	6	30	4	20%
5	SEVERE RISK(below 9)	4	20%	3	15%

The above table 2 showing the frequency and percentage distribution of samples awarding to the heel ulcer score among bedridden patients in the experimental and control group before water glove application.

In the experimental group 4(20%) of the samples had severe risk heel ulcer score level, 6(30%) of the samples had high risk heel ulcer score level, 5(25%) of the samples had moderate heel ulcer score level, 5(25%) of the samples had mild heel ulcer score level.

Similarly, in control group 3(15%) of the samples had severe risk heel ulcer score level, 4(20%) of the samples had high risk heel ulcer score level, 6 (30%) of the samples had moderate heel ulcer score level, 7(35%) of the samples had mild heel ulcer score level.

Fig 11 ;Cylindrical diagram showing the distribution of heel ulcer score level among bedridden patients in experimental and control group before water glove application

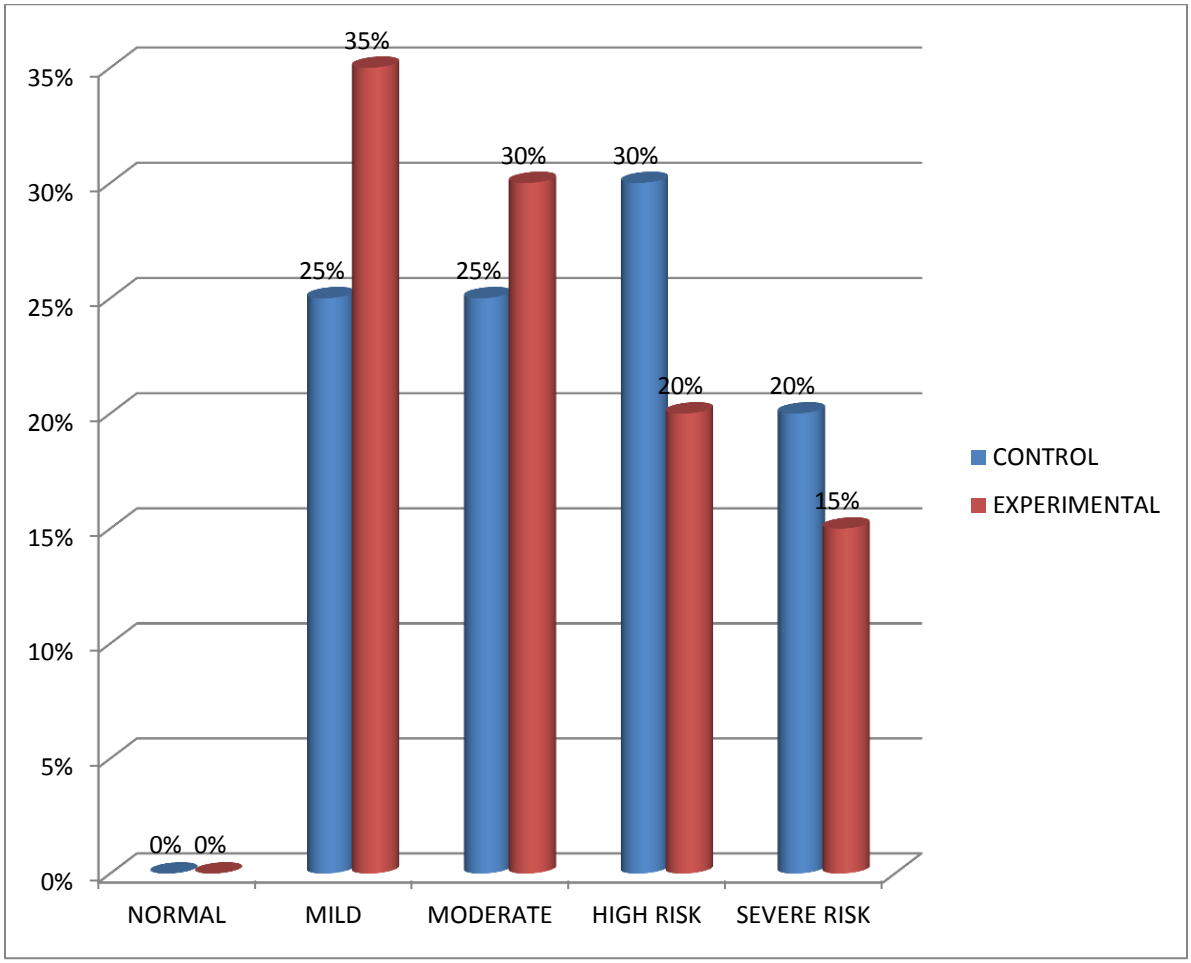


TABLE 3 ; Assessment of heel ulcer score among bedridden patients in experimental group and control group ;(after intervention)

(n = 40)

S.NO	HEEL ULCER SCORE	CONTROL GROP		EXPERIMENTAL GROUP	
		f	%	f	%
1	NORMAL(19-24)	0	0%	13	65%
2	MILD(15-18)	4	20%	5	25%
3	MODERATE(13-14)	5	25%	2	10%
4	HIGH RISK(10-12)	6	30%	0	0%
5	SEVERE RISK(below 9)	5	25%	0	0%

The above table 3 showing the frequency and percentage distribution of samples awarding to the heel ulcer score among bedridden patients in the experimental and control group after water glove application.

In the experimental group, 2(10%) of the samples had moderate heel ulcer score level, 3(15%) of the samples had mild heel ulcer score level. Similarly, in control group 5(25%) of the samples had severe risk heel ulcer score level,6(30%) of the samples had high risk heel ulcer score level, 5 (25%) of the samples had moderate heel ulcer score level, 4(20%) of the samples had mild heel ulcer score level.

Fig 12 ;Cylindrical diagram showing the distribution of heel ulcer score level among bedridden patients in experimental and control group after water glove application

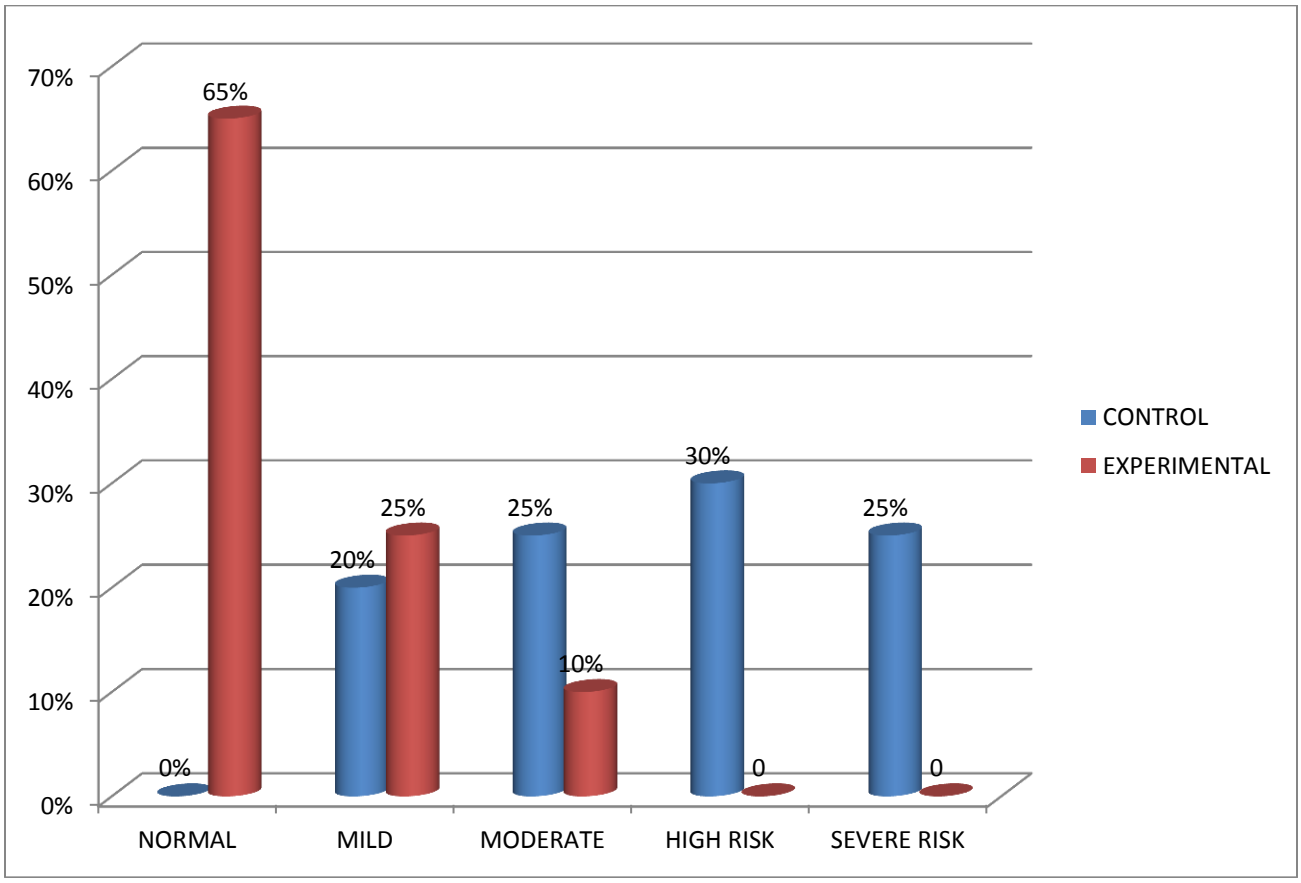


TABLE 4 ; paired 't' test showing significant difference between heel ulcer score level among bedridden patients in experimental group.

S.No.	Experimental group	Mean	Standard Deviation	Mean Difference	Table Value	't' Value	P value
1.	Pre test	15	3.4	4	2.04	13.2	P<0.05 Significant
2.	Post test	19	2.7				

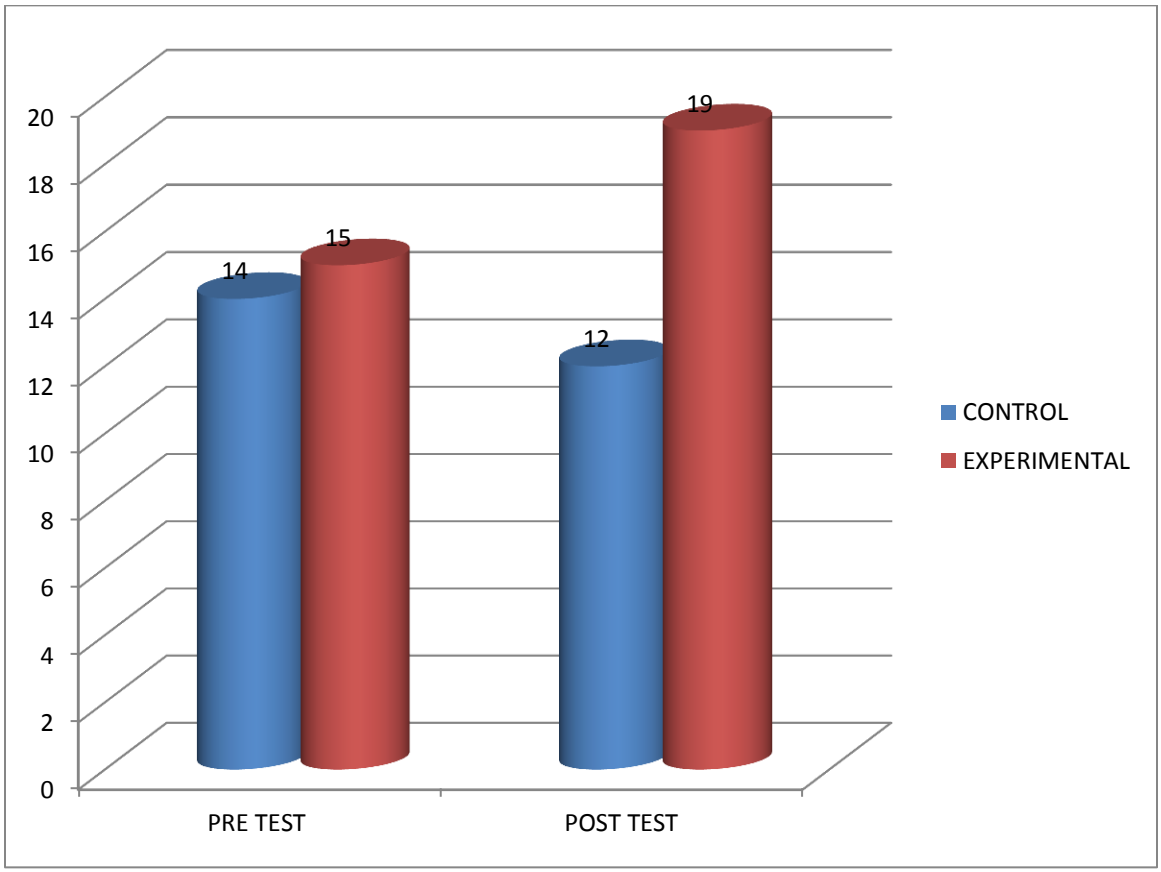
The above table 4 reveals that in experimental group the pre test mean score was 15 ,Standard deviation was 3.4, and in the post test mean score 19, and standard deviation was 2.7, with the paired 't' value of t= 13.2.and the mean difference is 4.so it is considered as significant.

TABLE 5 ; Paired 't' test showing significant difference between heel ulcer among bedridden patients in control group.

S.No.	Control group	Mean	Standard Deviation	Mean Difference	Table Value	't' Value	P value
1.	Pre test	14	3.8	2	2.09	2.3	p>0.05 not significant
2.	Post test	12	3.1				

The above table reveals that in control group the pre test mean score was 14, and standard deviation was 3.8 ,and in the post test mean score was 12 , standard deviation was 3.1, with the decreased effectiveness of paired 't' value of 2.3 . and the mean difference is 2. so it is considered not significant.

Fig 13; Cylindrical diagram showing the effectiveness of heel ulcer score level among bedridden patients in experimental and control group



SECTION III ;

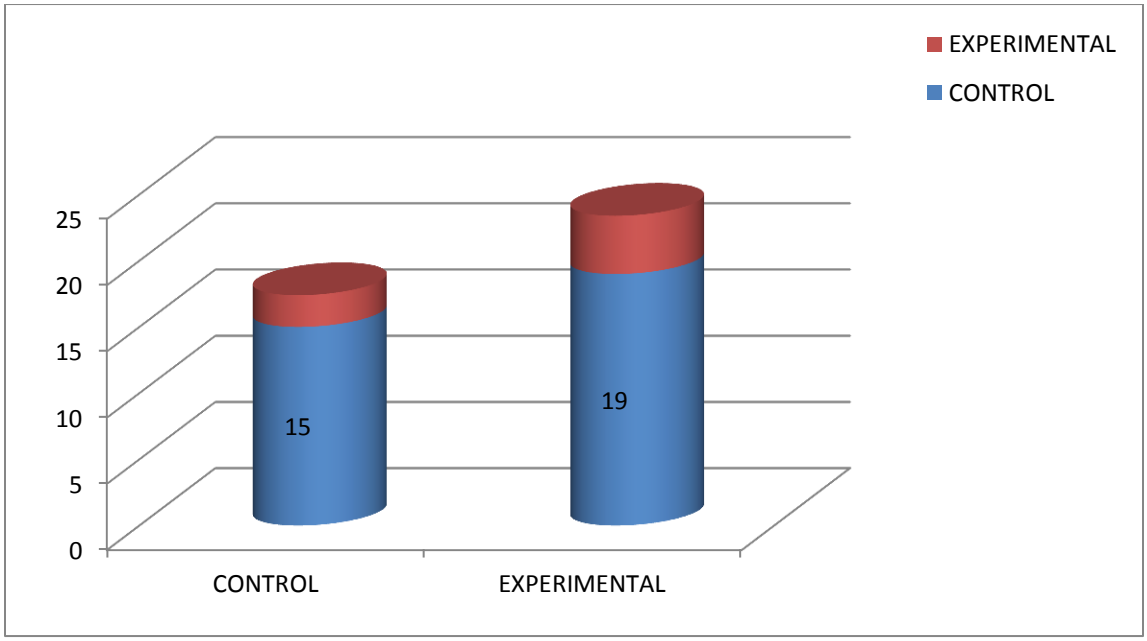
ASSESSMENT OF THE EFFECTIVENESS OF WATER GLOVES AMONG HEEL ULCER PATIENTS

TABLE 6; Unpaired ;'t' test showing the comparisons between the heel ulcer score level in experimental and control group
(n = 40)

S.No.	Post Test Score of Heel ulcer	Mean	Standard Deviation	Table Value	't' Value	P VALUE
1.	Control Group	12	3.1	2.02	7.8	p<0.05 significant
2.	Experimental Group	19	2.7			

* significant

Fig 14; Cylindrical diagram unpaired 't' test showing the comparisons between the heel ulcer score level among bedridden patients in experimental and control group



Thus the interpreted value shown are statistically highly significant, which was observed from the unpaired 't' test value of 7.8 with the p value of < 0.05.

SECTION – IV

ASSOCIATION BETWEEN DEMOGRAPHIC VARIABLES WITH THE HEEL ULCER LEVEL AMONG BEDRIDDEN EXPERIMENTAL GROUP AND CONTROL GROUP

This section deals with the association between experimental group of patient with pre test heel ulcer level and their gain score with their demographic variables.tw d

S. No	Demographic variables	Experimental group (n=20)			Control group (n=20)		
		F	%	χ^2	F	%	χ^2
1.	**Age in years**						
	15-25	3	15%	χ^2=6.356 df=12 N.S	4	20%	χ^2=3.37 df=12 N.S
	26-45	6	30%		4	20%	
	46-60	6	30%		6	30%	
	Above 60 yrs	5	25%		6	30%	
2.	**Gender**						
	a) Male	11	55%	χ^2=2.575 df=4 N.S	12	60%	χ^2=0.2 df=4 significant
	a) Female	9	45%		8	40%	
	b) Others	0	0%		0	0%	
3.	**Religion**						
	a) Hindu	13	65%	χ^2=15.84 df=16 N.S	14	70%	χ^2=1.283 df= 16 N.S
	a) Christian	4	20%		3	10%	
	b) Muslim	3	15%		3	15%	
	c) Others	0	0%		0	0%	

4.	EDUCATION						
	No formal education	3	15%	χ^2= 12.26 df= 16 N.S	6	35%	χ^2=0.663 df= 16 N.S
	Primary education	5	25%		3	15%	
	Secondary education	5	25%		4	20%	
	Degree	0	0		7	35%	
5.	OCCUPATION						
	Un employed	5	25%	χ^2=8.82 df= 9 N.S	5	25%	χ^2=7.316 df= 9 N.S
	sedentary workers	9	45%		8	40%	
	self employed	5	25%		5	25%	
	Others	1	5%		2	10%	
6.	ECONOMIC STATUS						
	Low class	2	10 %	χ^2= 2.737 df= 8 N.S	3	15%	χ^2= 6.03 df= 8 N.S
	Middle class	12	60%		13	65%	
	High class	6	30%		4	20%	
S. No	**Demographic variables**	**Experimental group (n=20)**			**Control group (n=20)**		
		F	**%**	χ^2	**F**	**%**	χ^2
7.	HOSPITALIZATION						
	10-15days	8	40%	χ^2=1.399 df= 12 N.S	8	40%	χ^2=2.429 df=12 N.S
	16-25days	11	55%		11	55%	
	1-2mon	1	5%		1	5%	
	Above 25days	0	0		0	0	

8.	TYPES OF BEDRIDDEN						
	Ortho	7	35%	χ^2=5.448 df= 12 N.S	5	25%	χ^2=1.995 df= 12 N.S
	Neurological CVA	6	30%		5	25%	
	poisoning	6	30%		8	40%	
	Snake bite	1	5%		2	10%	

The above table showing the association between the demographic variables and the pre test level of heel ulcer score among bedridden patients. None of the demographic variables are significantly associated with their heel ulcer score level. It was calculated using pearson chi-square test.

CHAPTER – V

Discussion

"The only way to keep your health is to eat what you don't want, drink what you don't like,and do what you'drather not"

This chapter discuss the main finding of the research study and reviews that in selection to the finding from the result of the study. For this study the data was obtained regarding the effect of water glove application of heel ulcer score level among bedridden patients in Erode Medical Center Hospital, Erode.

STATEMENT OF THE PROBLEM;

"A Study To Assess The Effectiveness Of Water Glove Application On Risk Reduction Of Heel Ulcer Among Bedridden Patients In Erode Medical Centre Hospital,Erode."

OBJECTIVES;

1. To assess the heel ulcer score among the bed ridden patients before and after application of water gloves.
2. To assess the effectiveness of water gloves among heel ulcer patients.
3. To determine the association between pre test heel ulcer among bedridden patients with their selected demographic variables

- **First Objective of the Study was To assess the heel ulcer score among the bed ridden patients before and after application of water gloves**.

Based on the above objective of the study to assess the heel ulcer level among bedridden patients in findings of the experimental and control group before and after water glove application.

The study result showing the pre test score of the experimental and control group. In experimental group, the heel ulcer score level was 0% in normal, 25% in mild , 25% in moderate , 30% in high risk ,20% in severe risk level. In control group. O% In normal , 35% in mild, 30% in moderate ,20% in high risk , 10 % in post test severe risk .

The post test score of the experimental group, the heel ulcer score level was 65% in normal ,20% in mild, 10 % in moderate levels. In control group 20% in mild, 25% in moderate, 30% in high risk, 25% in sever risk. Thus in the experimental group, there is effect on change in the heel ulcer score ; level after post test, but in the control group there is no change in the heel ulcer score level.

The Second Objective of the Study was to assess the effectiveness of water gloves among heel ulcer patients.

The computed 't' value is 13.2 at level p(>0.005) depicts that there is a significant difference between the heel ulcer score level among experimental group. The computed paired 't' value is 2.3 at the level p(>0.005) depicts that there is a not significant difference between the heel ulcer score among control group. The computed unpaired 't' value is 7.8 at level p(>0.005) depicts that there is a highly significant difference between the heel ulcer score level among experimental and control group.

- **The Third Objective of the Study was To determine the association between pre test heel ulcer among bedridden patients with their selected demographic variables**

The calculated x^2 values of all demographic and clinical variables of experimental group are not higher than the tabled value. It showing that non significant

association between the heel ulcer levels in patients with heel ulcer in experimental group. The calculated x^2 values of all demographic and clinical variables of control group are not higher than the tabled value. It showing that non significant association between the heel ulcer levels in patients with heel ulcer in experimental group.

CHAPTER – VI

Summary, Conclusion, Nursing Implications, Limitations and Recommendations

Heel ulcers are lesions caused by unrelieved pressure that results in damage to the underlying tissue. Generally, these are the result of soft tissue compression between a bony prominence and an external surface for a prolonged period of time. The consequences of pressure-induced skin injury range from non bleachable erythema of intact skin to deep ulcers extending to the bone. The ulcer imposes a significant burden not only on the patient, but the entire health care system. Reducing the frequency of heel ulcers is an important component of current goals for patient safety.

Pressure ulcers occur over bony prominences. The most common areas for pressure ulcers include the sacrum, coccyx, heels, and ear. Pressure over a bony prominence causes tissue ischemia in the skin, muscle, and the fascia between the skin surface and bone. In addition to pressure, moisture, friction, and shear contribute to the development of pressure ulcers. Pressure ulcers remain the chief complications of prolonged hospitalization, specifically in situations of poor nutrition, increased moisture on the skin e.g., incontinence, prolonged pressure, and compromised sensory stimuli.

Heel ulcers increase the cost of hospitalization, increase patient morbidity and mortality, and play a significant role in the spread of infection in the clinical area. Stage IV Heel ulcers have a high cost, and stopping the progression of early stage Heelulcers can significantly reduce expenditures in resource strained facilities and decrease unnecessary pain impacting thousands of patient lives. Prevention of Heel ulcer is always better than treating the complication associated with it, with higher expenses.

Heel ulcer occurs almost exclusively in people with limited mobility, so it is a challenge to prevent the occurrence of Heelulcer. The aim of the present study was A study to assess the effectiveness of water glove application on risk reduction of heel ulcer among bedridden patients at Erode Medical Centre Hospital, Erode (DT). The researcher had selected 40 bedridden patients who were in Erode Medical Centre hospital. Non probability purposive sampling technique was used to drive the samples.

This chapter deals with a brief summary of the study and the significant findings. The chapter is perhaps a means to an end, but not an end in itself as it offers avenues that can be taken up for further and more intensive research studies.

The purpose of the study was to assess the effectiveness of water glove application for heel ulcer among bedridden patients.The effect was analyzed by comparing the heel ulcer level of the respondents with and without water glove application by using Braden scale.

SPECIFIC OBJECTIVES:

- TO ASSESS THE HEEL ULCER SCORE AMONG THE BED RIDDEN PATIENTS BEFORE AND AFTER APPLICATION OF WATER GLOVES.
- TO ASSESS THE EFFECTIVENESS OF WATER GLOVES AMONG HEEL ULCER PATIENTS.
- TO DETERMINE THE ASSOCIATION BETWEEN PRE TEST HEEL ULCER AMONG BEDRIDDEN PATIENTS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

HYPOTHESIS;

1. H1; There will be a significant difference between the mean pre test and post test heel ulcer score among bedridden patients
2. H2;. There will be significant effectiveness of water glove application among bedridden patients.
3. H3; There will be a significant association between the posttest heel ulcer score among bedridden patients with their selected demographic variables.

TECHNIQUES AND TOOLS;

A quasi experimental design waschosen for this study without randomization. A non-probability purposive sampling technique was adopted to select samples with inclusion criteria. The sample size was 40, among them, 20 were in experimental group and 20 were in control group. Braden scale was used to assess the level of heel ulcer score among bedridden patients.

Its consist of

SECTION-1

Deal with demographic variables of patient with heel ulcer such as age Age , Education ,Occupation, Economic status, religion, hospitalization, types of bedridden.

SECTION-2

Deal with Braden pressure sore risk reduction scale was used to check the level of heel ulcer.

MAJOR STUDY FINDINGS

The study findings showed that in the experimental group, in pre test4(20%) of the samples had severe risk heel ulcer score level, 6(30%) of the samples had high risk heel ulcer score level, 5(25%) of the samples had moderate heel ulcer score level, 5(25%) of the samples had mild heel ulcer score level.Whereas, in the post test experimental group, 2(10%) of the samples had moderate heel ulcer score level, 5(25%) of the samples had mild heel ulcer score level , 13(65%) of the samples had normal level..In control group, In pre test in 3(15%) of the samples had severe risk heel ulcer score level, 4(20%) of the samples had high risk heel ulcer score level, 6 (30%) of the samples had moderate heel ulcer score level, 7(35%) of the samples had mild heel ulcer score level. In control group ,in post test in 5(25%) of the samples had severe risk heel ulcer score level,6(30%) of the samples had high risk heel ulcer score level, 5 (25%) of the samples had moderate heel ulcer score level, 4(20%) of the samples had mild heel

ulcer score level.From the above finding it is clear that there has been a significant difference between pre and post test level of heel ulcer score among bedridden patients.

The present study results revealed that among the experimental group, the mean pre test score of heel ulcer was 15 with standard deviation 3.4 whereas the mean post test score of heel ulcer was 19 with standard deviation of 2.7.the obtained `t` value 13.2 was significant at $p<0.05$ level.

In control group the mean pre test score of heel ulcer was 14 with standard deviation 3.4.whereas the mean post test score of heel ulcer was 12 with standard deviation of 3.1.the obtained `t` value 2.3 was significant at $p<0.05$ level. Hence the hypothesis (H_1) is accepted.

The study shows that among experimental group,the mean post test score was 19 with standard deviation 2.7.among control group,the mean post score was 12 with standard deviation 3.1 .the calculated ` t`value 7.8 was significant at $p<0.05$ level. From above the findings it is revealed that water glove application y was more effective in reducing level of heel ulcer among bedridden patients. Hence the stated (H_2) is accepted.

The calculated chi square values of for the type of ward were found to significant at $p<0.05$ level.hence it is inferred that type of ward have significant association between the level of heel ulcer among bedridden patients. Hence the hypothesis(H_3) is accepted .

CONCLUSION

The main conclusion drawn from the present study was that most of theadults with heel ulcer had normal, mild, moderate, high risk, severe risk heel ulcer. After water glove application,the level of heel ulcer was reduced significantly. Samples became familiar and found themselves comfortable and also expressed satisfaction. It is thus concluded that the water glove application is effective in reduction on level of heel ulcer among bedridden patients.

IMPLICATION FOR THE STUDY:-

The findings of the study have several implications in various areas of nursing education, practice, administration, and nursing research.

Nursing Practice

- It is the responsibility of the health professional to be aware of the advancement in medical research and to disseminate the same to the general public for the betterment of their health in the future.

- People seek complementary and alternative medicine in order to avoid possible side effects of drugs, treatment and heavy expenses on medical care.

  Health professionals can make all the attempts to create awareness regarding heel ulcer. Teaching program can be conducted for groups, as it would allow both literate and illiterate clients to enhance their knowledge.

Nursing Education

- Efforts should be made to improve and expand nursing curriculum to provide more content concerning early identification and early intervention for heel ulcer patients. More knowledge should be provided to the students regarding increasing popularity of alternative and complementary therapies like water glove application. Students can be encouraged to take up projects and studies on water glove application.
- Nurse educators should emphasize more on preparing students to impart health information to the public regarding complementary therapies like water glove application.
- Nursing students should be taught about the importance of health education and various methods of providing health education regarding prevention of heel ulcer among bedridden patients.
- Periodic seminars and group discussion can be arranged regarding care of prevention of heel ulcer among bedridden patients.

Nursing Administration

- Nursing administrators need to organize continuing nursing program for nursing professionals regarding bedridden patients.
- Nursing administrators should develop nursing practice standards, protocols and manuals for heel ulcer assessment and its management.

- Nursing administrators can collaborate with the community leaders to provide care and attention to bedridden patients.
- Nurse administrators should conduct teaching program for heel ulcer among bedridden patients regarding various complementary therapies.
- Nurse administrators should keep good contact with help group and services available and should act as a referral agent.

Nursing Research

- Findings of the present study suggest that education and administration should encourage nurses to read, discuss and conduct research to improve knowledge and practice on water glove application among bedridden patients.
- This study can be used for evidence based nursing practice as a rising trend. It can be a motivation for nurses to conduct research in future on comparing different treatment modalities for water gloveapplication among bedridden patients.
- Nursing researches are the means of expanding the body of knowledge and broaden the scope of nursing. This is possible only if the nurses take initiative in conducting further studies. More research on this area would be beneficial for heel ulcer among bedridden patients. The effectiveness of research study can be made by further implication of study.

Limitations

- The size of the sample was small to draw conclusion.
- The researcher could not use randomized sampling technique in this study.

Recommendations

- A similar study can be conducted for a large group of samples as a long term basis.
- A similar study can be conducted with randomization of samples.
- A comparative study also can be done to evaluate water glove application andheel ulcer score among bedridden patients .
- A similar study can be conducted to assess the effectiveness of water glove application andheel ulcer score among bedridden patients .

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SECTION – A (DEMOGRAPHIC VARIABLES)

1. Age in years
    a) 15 – 25 yrs
    b) 26 – 45 yrs
    c) 46 – 60 yrs
    d) Above 60 yrs
2. Sex /gender
    a) Male
    b) Female
    c) Transgender
3. Education
    a) No formal education
    b) Primary education
    c) Secondary education
    d) Higher secondary education
    e) Degree
4. Occupation
    a) Unemployed
    b) Sedentary workers
    c) Self employed
    d) Others

5.Economic status

a) Low class
b) Middle class
c) High class

6.Religion

a) Hindu
b) Christian
c) Muslim
d) Others

8. How long the patient is in hospitalization?

a) 10-15 days
b) 16-25days
c) 1-2 months
d) Above 2months

8. Types of bedridden

a) Orthopedic
b) Neurological CVA
c) Poisoning
d) Snake bite

BRADEN SCALE FOR PREDICTING PRESSURE SORE RISK

Severe risk ; total score<9 high risk ; total score 10-12 Moderate risk ; total score 13-14 mild risk ; total score 15-18				Date of assessment
Sensory perception	Completely limited (1)	Very limited (2)	Slightly limited(3)	No impairment(4)
Moisture	Constantly moist (1)	Often moist(2)	Occasionally(3)	Barely moist(4)
Activity	Bed rest (1)	Chair fast(2)	Walks occasionally(3)	Walks frequently (4)
Mobility	Completely immobilize (1)	Very limited (2)	Slightly limited(3)	No limitations(4)
Nutrition	Very poor (1)	Probably inadequate(2)	Adequate(3)	Excellent(4)
Friction & shear	Problem 1	Potential problem(2)	No apparent problem(3)	none
TOTAL SCORE				

CERTIFICATE BY THE EDITOR

This is to certify that the dissertation entitled: **"A Study To Assess The Effectiveness Of Water Glove Application On Risk Reduction Of Heel Ulcer Among Bedridden Patients In Erode Medical Centre Hospital, Erode."** is a bonafide research work done by Mrs. Ammu.K. M.Sc., (Nursing) II Year (Branch I Medical Surgical Nursing) Post Graduate degree student of Dharmarathnakara Dr.Mahalingam Institute of Paramedical Sciences and Research, Sakthinagar, BhavaniTaluk, Erode District. Edited this manuscript on behalf of the partial fulfillment of the pre requisite for the degree of master of sciences in Nursing (Medical Surgical Nursing).

Date :

Place :

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LETTER SEEKING PERMISSION TO CONDUCT PILOT STUDY

From

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To

PRINCIPAL,
COLLEGE OF NURSING
Dharmarathnakara Dr.Mahalingam Institute
of Paramedical Sciences and Research,
(Sri Adichunchanagiri Shikshana Trust)

Respected Sir / Madam,

SUB : Permission to conduct study - Reg.

- - - - -

I, the II year M.Sc., Nursing student of Dr. Mahalingam College of Nursing, Sakthi Nagar. As a partial fulfillment of Master of Science in Nursing, I have undertaken the following research study, which has to be submitted to The Tamilnadu Dr.M.G.R. medical University, Chennai.

RESEARCH STUDY:

"A STUDY TO ASSESS THE EFFECTIVENESS OF APPLICATION OF WATER GLOVE ON PREVENTION OF HEEL ULCER AMONG BEDRIDDEN PATIENTS IN ERODE MEDICAL CENTRE HOSPITAL, ERODE."

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Date : .....

I kindly request you to permit me to conduct the study on application of water gloves on pressure area in management of foot ulcer among bed ridden patients at your esteemed hospitals with effect from ---------- to ----------.

I kindly request you to permit me to conduct the proposed study. Please, kindly do the needful.

Thanking you,

Date :

Yours Sincerely,

Place :

(AMMU K)

Dr. S. SENTHILKUMARAN,
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To

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PRINCIPAL,
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Through,

The Principal,
Dr. Mahalingam College of Nursing,
Sakthi Nagar (Po),
Bhavani (TK), Erode (DT).

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I kindly request you to permit me to conduct the proposed study. Please, kindly do the needful.

Thanking you,

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Permitted.

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Her content for the study is validated and was found reliable.

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